



DVR Firmware Version 2.0  
Document Part Number 700-0099 R008

# About This Guide

This guide describes the installation steps for the TL4/2 DVR with firmware version 2.0 and higher.


This guide provides information to help you install the TL DVR System hardware and configure the DVR menus to user requirements with the DVR On Screen Display or vMax Web.

In this guide, the TL4 (Trooper 4 channel DVR) and TL2 (Trooper 2 channel DVR) are referred to as Trooper TL when the information applies to both models.

Related guides include:

- *Trooper TL4 and TL2 Mobile DVR System User Guide*, 700-0098
- *vMax View User Guide*, 700-0137

## Conventions Used

	<b>CAUTION</b> Cautions identify conditions or practices that could result in damage to the unit or other equipment.
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**Tip:** These notes provide tips for optimum performance of the DVR system.

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**Important:** These notes provide important information, which are not as serious as a Caution.

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## Abbreviations and Acronyms

Acronym	Definition	Acronym	Definition
CAN	Controller area network	MPEG	Moving Picture Experts Group
DVR	Digital video recorder	OSD	On-Screen Display
FPS	Frames per second	RA	Return Authorization
GPS	Global Positioning System	TCM	Transmission Control Module
HD or HDD	Hard drive Hard disk drive	TCP/IP	Transmission Control Protocol/ Internet Protocol
H.264	H.264 video compression	USB	Universal Serial Bus
LAN	Local area network	UTC	Universal Time Coordinated

## Finding Information Online

You can find more information about Seon Design Inc. as well as its products and services at **[www.seon.com](http://www.seon.com)**.

## Customer Service Contact Information

Toll free telephone: 1-877-630-7366

Telephone: 604-941-0880

Email: [service@seon.com](mailto:service@seon.com)

# Contents

## Installation

1.1. Tools and Equipment .....	1-1
1.2. TL DVR System Package Contents (typical) .....	1-2
1.3. Installation Diagrams .....	1-2
1.3.1. TL4 Installation Diagram .....	1-3
1.3.2. TL2 Installation Diagram .....	1-4
1.4. Installation Best Practices .....	1-5
1.5. Dimensions .....	1-6
1.6. DVR and Component Installation .....	1-7
1.6.1. DVR Installation .....	1-7
1.6.2. Camera Installation .....	1-8
1.6.3. Adapter Harness Installation .....	1-9
1.6.4. Alarm Button Installation .....	1-9
1.6.5. Wake On Alarm Installation (Optional) .....	1-10
1.6.6. Diagnostic Button Installation (Optional) .....	1-11
1.6.7. 12 Volt Installation Details .....	1-11
1.7. Hardware Installation Final Checklist .....	1-12

## DVR Setup

2.1. DVR Menu Access .....	2-1
2.2. Basic DVR Configuration Settings .....	2-2
2.3. vMax Web Laptop Configuration .....	2-13
2.3.1. Connecting the DVR to the Laptop .....	2-15

## Advanced Setup

3.1. DVR Configuration Uploads .....	3-2
3.1.1. Configuration Upload from USB Memory Device .....	3-2
3.1.2. Configuration Uploads in vMax Web .....	3-6
3.2. DVR Firmware Updates .....	3-10
3.3. Email Notifications .....	3-11
3.3.1. On-Screen Display Email Setup .....	3-11
3.3.2. vMax Web Email Setup .....	3-14

## DVR Configuration Menus

4.1. DVR Configuration Menu Tree .....	4-2
4.2. Time and Date Menu .....	4-3
4.2.1. DST (Daylight Savings Time) Settings Menu .....	4-4
4.3. Titles and Display Menu .....	4-5
4.3.1. Diagnostic Display Menu .....	4-6

Contents

- 4.4. Alarms and Signals Menu ----- 4-6
  - 4.4.1. Alarm Menu ----- 4-7
  - 4.4.2. Signals Menu ----- 4-9
  - 4.4.3. Speed Menu ----- 4-10
  - 4.4.4. GPS Settings Menu ----- 4-11
- 4.5. Recording Settings Menu ----- 4-12
  - 4.5.1. Camera Settings Menus ----- 4-13
  - 4.5.2. Timer Settings Menus ----- 4-14
- 4.6. Network Settings Menu ----- 4-15
  - 4.6.1. Advanced Network Menu ----- 4-16
  - 4.6.2. VMS Servers Menu ----- 4-17
  - 4.6.3. Supervisor Menu ----- 4-18
  - 4.6.4. User Levels Menu ----- 4-19
  - 4.6.5. DDNS (Dynamic Domain Name Server) Settings Menu ----- 4-20
- 4.7. System Settings Menu ----- 4-21
  - 4.7.1. Program Update Menu ----- 4-22
  - 4.7.2. E-mail Settings Menu ----- 4-24
  - 4.7.3. One-Touch Settings Menu ----- 4-25

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- Contact Information ----- L-1

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- Advance Replacements ----- W-1
- Disclaimer ----- W-2

# CHAPTER 1

## Installation

This chapter describes the installation steps for the TL4/2 DVR with firmware version 2.0. This chapter contains the following sections:

- [Tools and Equipment, on page 1-1](#)
- [TL DVR System Package Contents \(typical\), on page 1-2](#)
- [Installation Diagrams, on page 1-2](#)
  - [TL4 Installation Diagram, on page 1-3](#)
  - [TL2 Installation Diagram, on page 1-4](#)
- [Installation Best Practices, on page 1-5](#)
- [Dimensions, on page 1-6](#)
- [DVR and Component Installation, on page 1-7](#)
  - [DVR Installation, on page 1-7](#)
  - [Camera Installation, on page 1-8](#)
  - [Adapter Harness Installation, on page 1-9](#)
  - [Alarm Button Installation, on page 1-9](#)
  - [Wake On Alarm Installation \(Optional\), on page 1-10](#)
  - [Diagnostic Button Installation \(Optional\), on page 1-11](#)
  - [12 Volt Installation Details, on page 1-11](#)
- [Hardware Installation Final Checklist, on page 1-12](#)

### 1.1. Tools and Equipment

This DVR system must be installed by a professional installer. A professional installer has the experience and equipment to install and configure this DVR system to run properly.

Check that you have all the system components and inspect the units for any scratches or damage before installing.

Keys included in package contents:

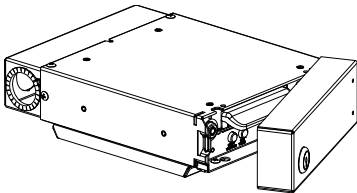
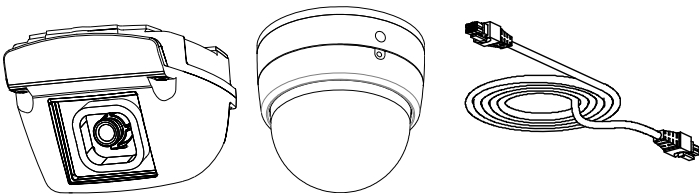

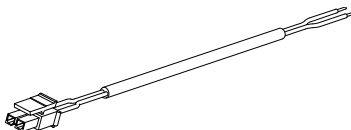
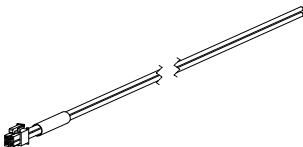
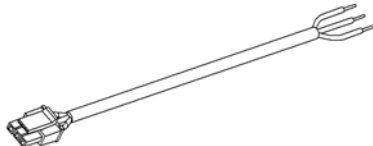
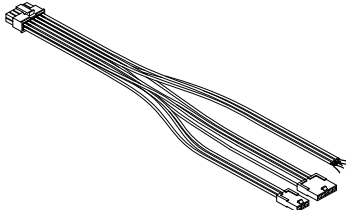
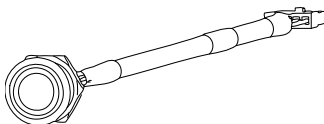
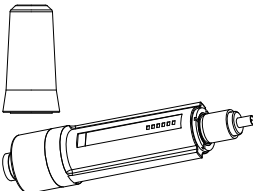
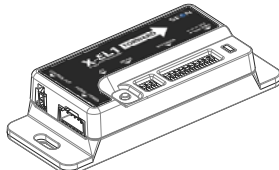
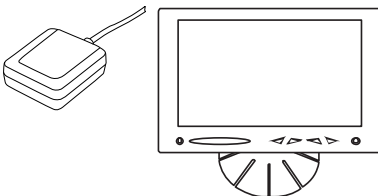

- DVR keys for securing the removable hard drive
- Front cover keys for securing the removable front cover

Configuration equipment:

- For on-screen configuration: portable video monitor and trackball mouse
- For vMax Web configuration: laptop and an Ethernet cable

# 1.2. TL DVR System Package Contents (typical)

The required and optional contents of a typical installation package are shown below. The actual contents of your installation package may vary, depending on the options selected.

Trooper TL DVR with hard drive, locking front cover, cable cover, and mounting plate		Cameras (up to 4) and extension cables	
			
Alarm Switch and cable	Alarm input harness	Ignition input harness	
			
Speed harness	Adapter harness		
			
Diagnostic Button (and extension cable, not shown)	Smart-Reach Lite	XELR-8 Inertia sensor	
			
GPS receiver, Portable video monitor	Smart-Reach Cellular Modem (and cabling, not shown)		
			

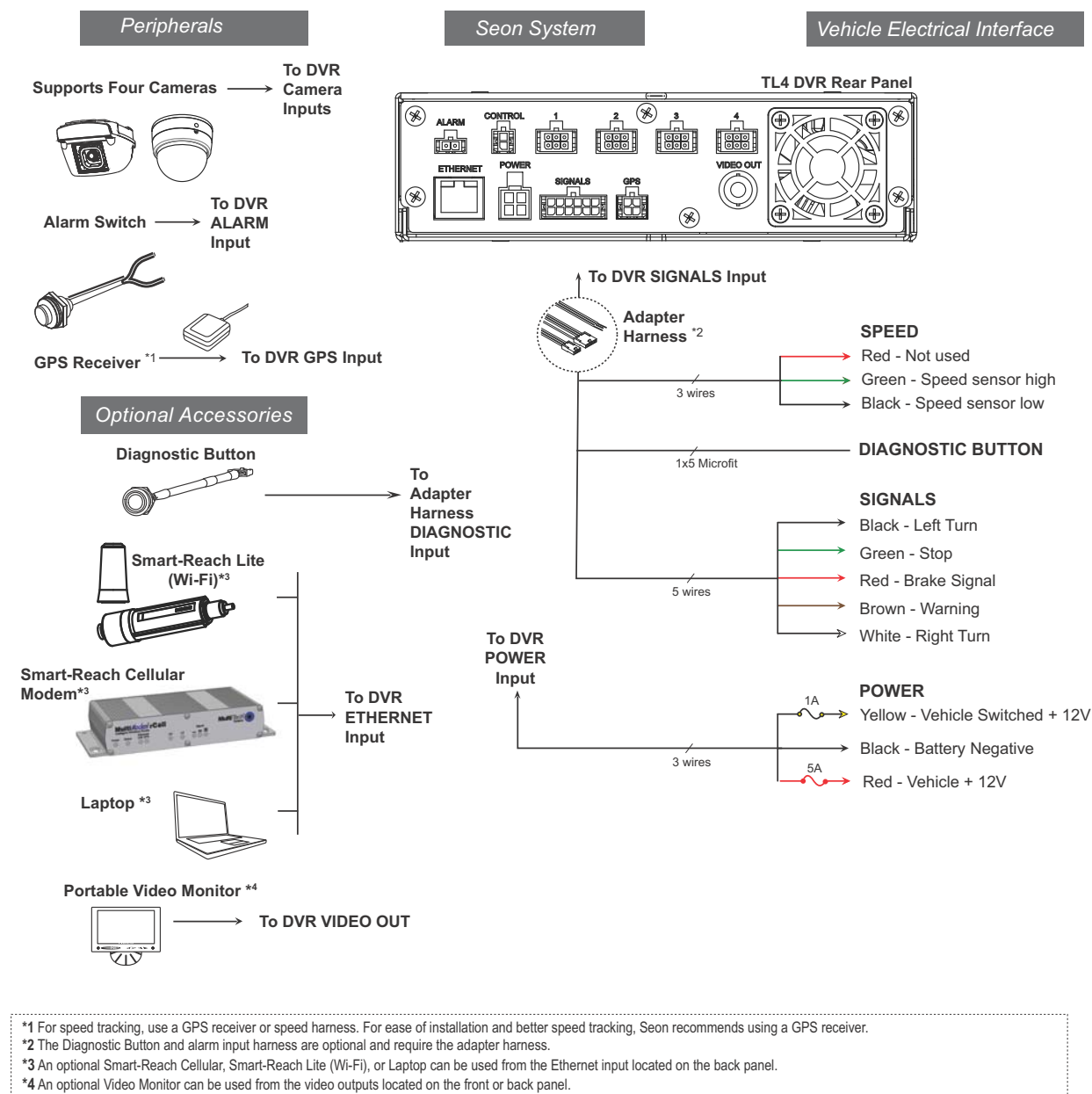
# 1.3. Installation Diagrams

To install the typical TL4 DVR system, see [TL4 Installation Diagram, on page 1–3](#).  
To install the typical TL2 DVR system, see [TL2 Installation Diagram, on page 1–4](#).

### 1.3.1. TL4 Installation Diagram

#### Explorer® TL4

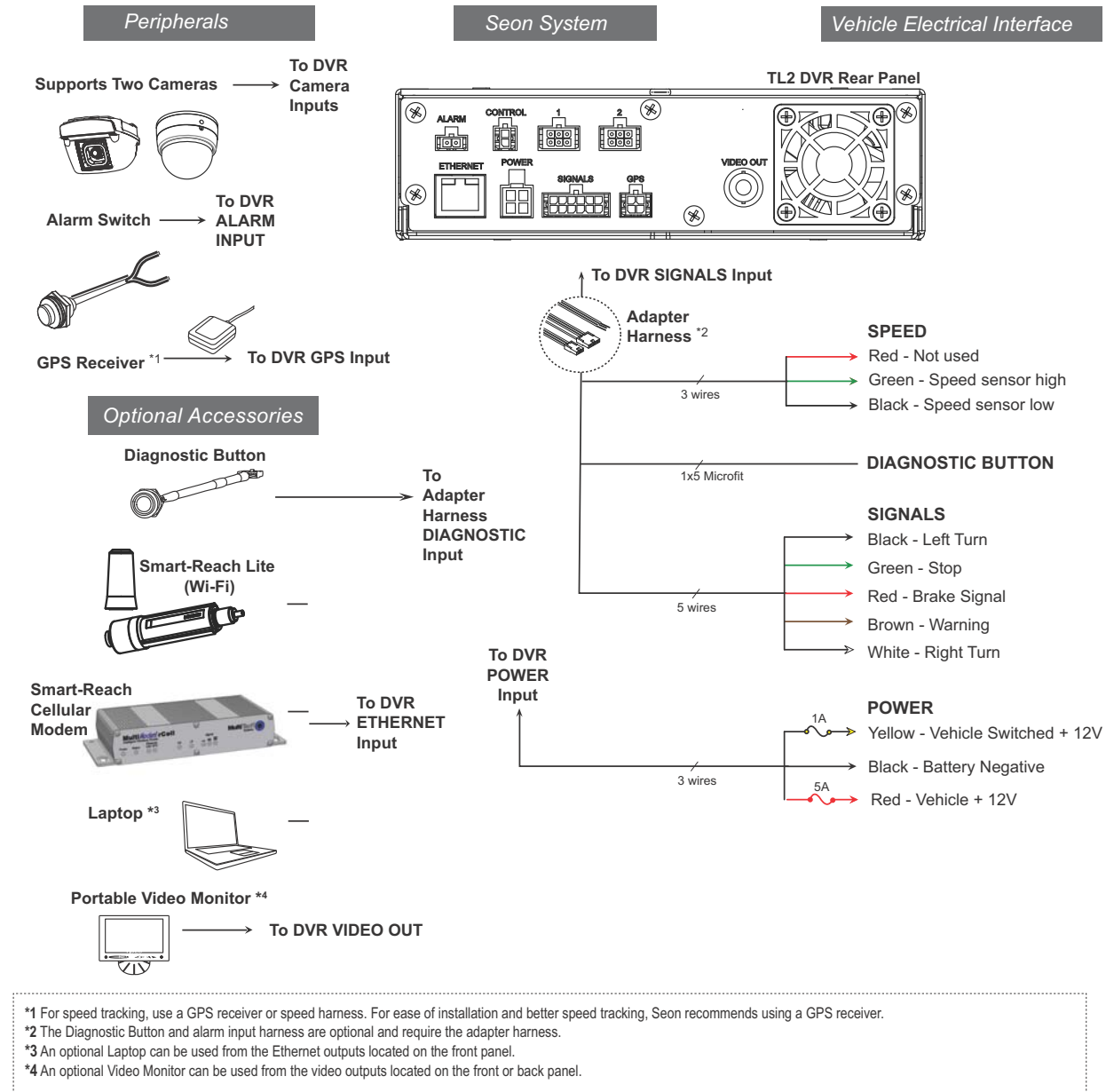
#### Typical System Setup



**Figure 1** Typical TL4 System

## 1.3.2. TL2 Installation Diagram


### Explorer® TL2 Typical System Setup



**Figure 2** Typical TL2 System



## 1.4. Installation Best Practices

	<p><b>CAUTION: Heat or Moisture Damage Risk</b></p> <p>Do not install the DVR in a location where the unit is exposed to excessive heat or moisture. Installation close to extreme heat or moisture will void the product warranty.</p> <p>Route the wiring and cables away from sharp edges that might damage the insulation. Avoid sharp bends in the cable.</p> <p>Contact Seon before attaching the DVR to other equipment in the vehicle.</p>
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The TL DVR is secured with a security front cover and a cable cover. Two cable grommets (and two knockouts) on the cable cover allow wiring to enter from the left side, right side, or back of the unit.

The DVR can be installed horizontally or vertically but not upside down.

Before installing the TL DVR, keep in mind that a well-ventilated location and sufficient clearance around the unit are key factors in performance and maintenance. See [Table 1](#) for information on installation requirements.

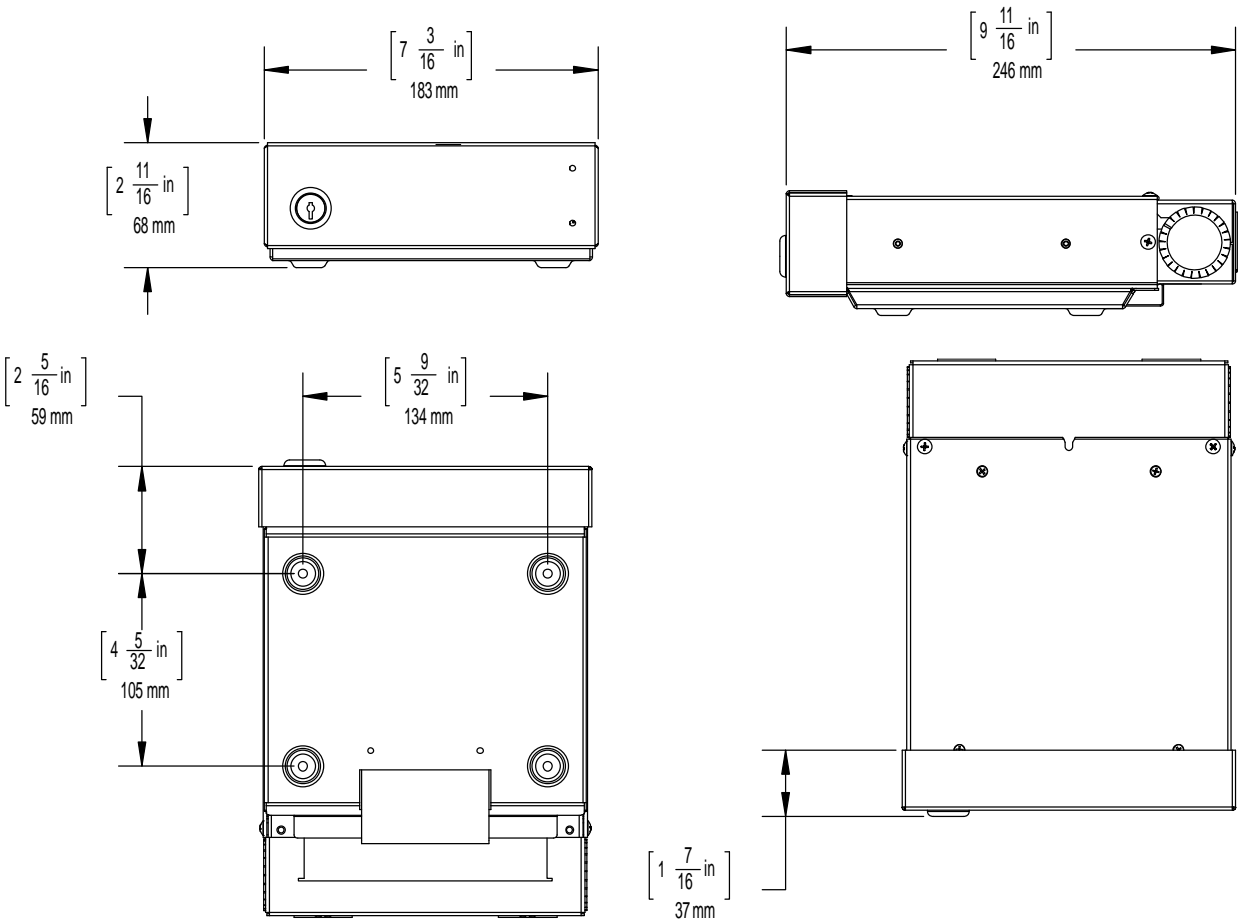
**Table 1** Choosing a Location and Other Installation Requirements

<b>Ventilated location</b>	Install the DVR <b>away from</b> any sort of heat outlet, heater, or AC blower. Do not operate the DVR in a closed-in area or restrict ventilation in any way. The DVR requires air circulation to maintain optimum operating temperature and provide best performance. Do not expose the DVR to moisture.
<b>Mount to secure surfaces only</b>	Do not mount the DVR to a plastic panel or other surface that is subject to constant vibration.
<b>Mounting orientation</b>	Mount the DVR in either a horizontal or vertical orientation, or hung right side up but <b>not</b> upside down.
<b>Clearance around the DVR</b>	Allow sufficient clearance of at least six (6) inches in front of the DVR and two (2) inches on each side for removal of the security front cover and easy access to the hard drive and USB ports. Allow sufficient clearance behind the DVR for camera cables, mounting cables, Ethernet cables, and power cables.
<b>Mounting cables</b>	The radius for the mounting cables will be dictated by the cable cover. The rearmost surface of the cable cover will be about 3 inches from the back of the DVR to allow camera cables to bend over each other.
<b>Ethernet cables</b>	Avoid right angle bends in the Ethernet cables.
<b>Power cables</b>	Provide enough slack on the power cable to prevent any force from being exerted on the connectors. A single 4-inch diameter loop is sufficient.

# 1.5. Dimensions

**Important:** Specifications are subject to change without notice.

- Weight: 5.3 lb (2.4 kg) including lockbox
- Material: steel, powder coated black



**Figure 1-1** Trooper TL Dimensions

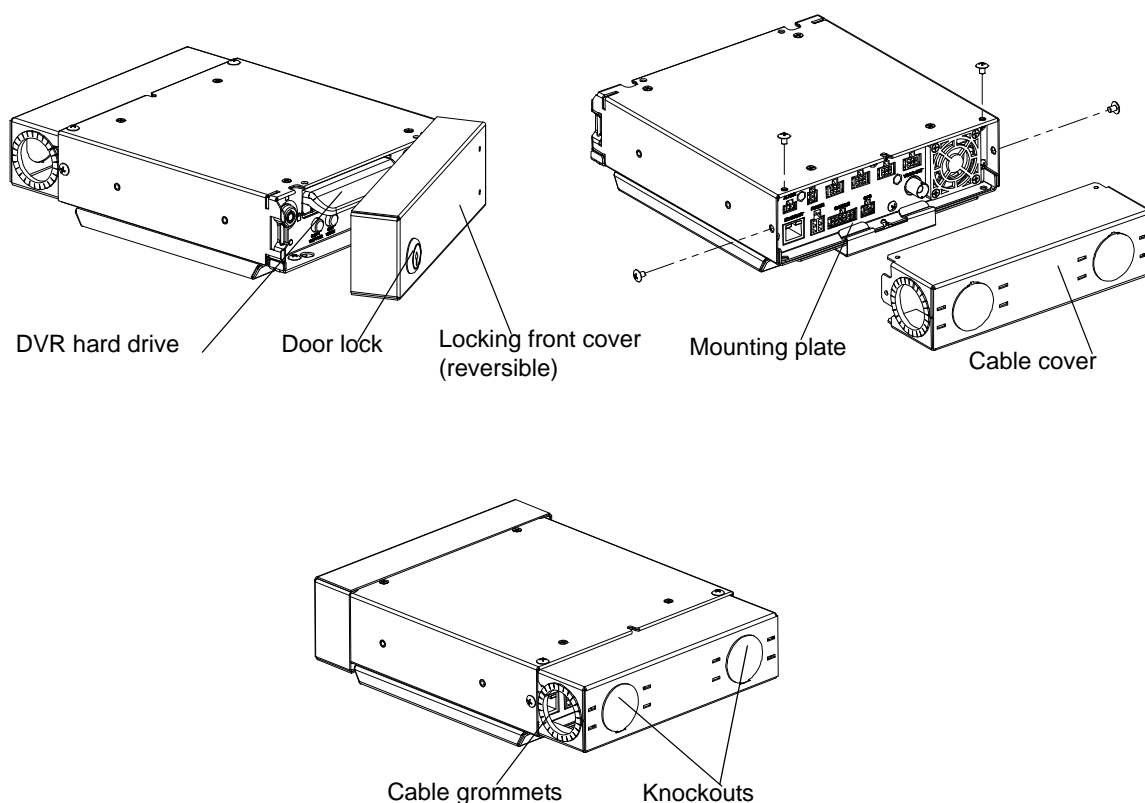
## 1.6. DVR and Component Installation

### 1.6.1. DVR Installation

The DVR typically ships with the locking front cover on and the mounting plate and cable cover off.

**To install the TL DVR:**

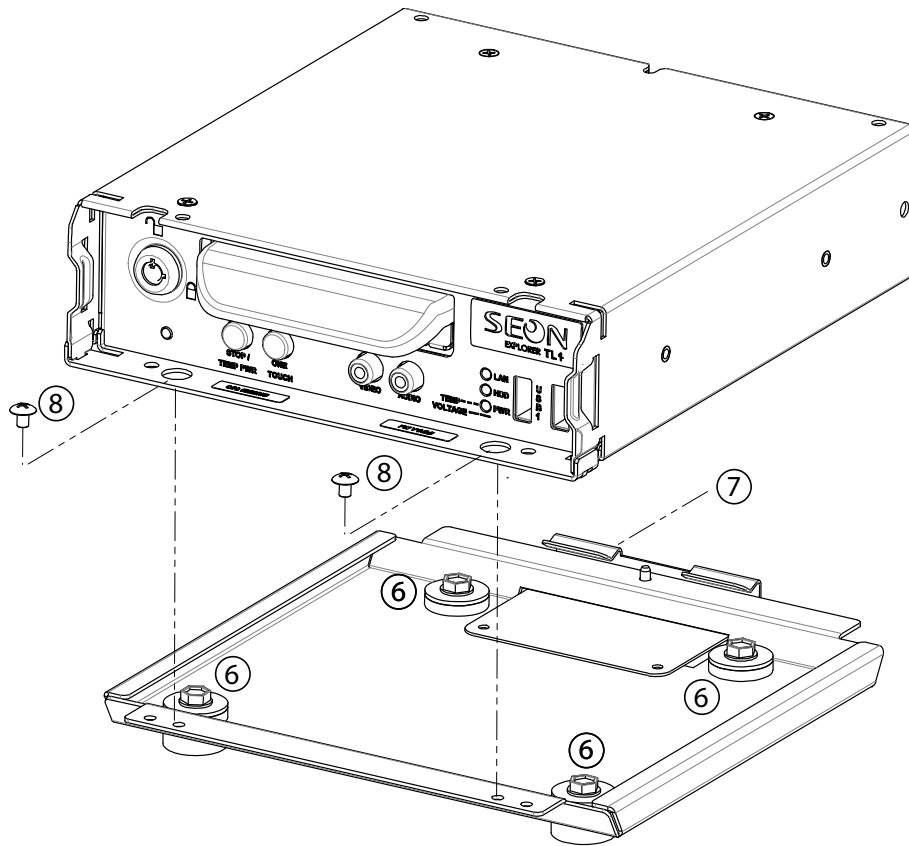
1. Select an appropriate mounting location and orientation, horizontal or vertical. For the dimensions and location of the mounting holes, see [Dimensions, on page 1-6](#).
2. Unlock the door lock and remove the front cover from the unit to access the front panel. Verify there is a hard drive inside the DVR.
3. Determine where the wiring and camera cables will enter the unit: on the left side, right side or back.
4. Remove the necessary knockout (s) and insert plugs and cable grommets.



**Figure 1-2** Trooper TL Components

5. Use the mounting plate to mark the desired position of the DVR and drill the four mounting holes.

6. Fasten the mounting plate to the mounting surface with the four #10 × ¾ sheet metal screws or #10 × 1" self-drilling screws. See [Figure 1-3](#).



**Figure 1-3** DVR Attaching to Mounting Plate

7. Clip the tray spring tab to the notch in the bottom back edge of the DVR.
8. Fasten the flange to the front of the DVR with the two pan-head Phillips 3/16" screws.
9. Connect the necessary cables and components.

### 1.6.2. Camera Installation

Install the cameras according to the product documentation that is included with the camera.



#### **CAUTION: Wiring Damage**

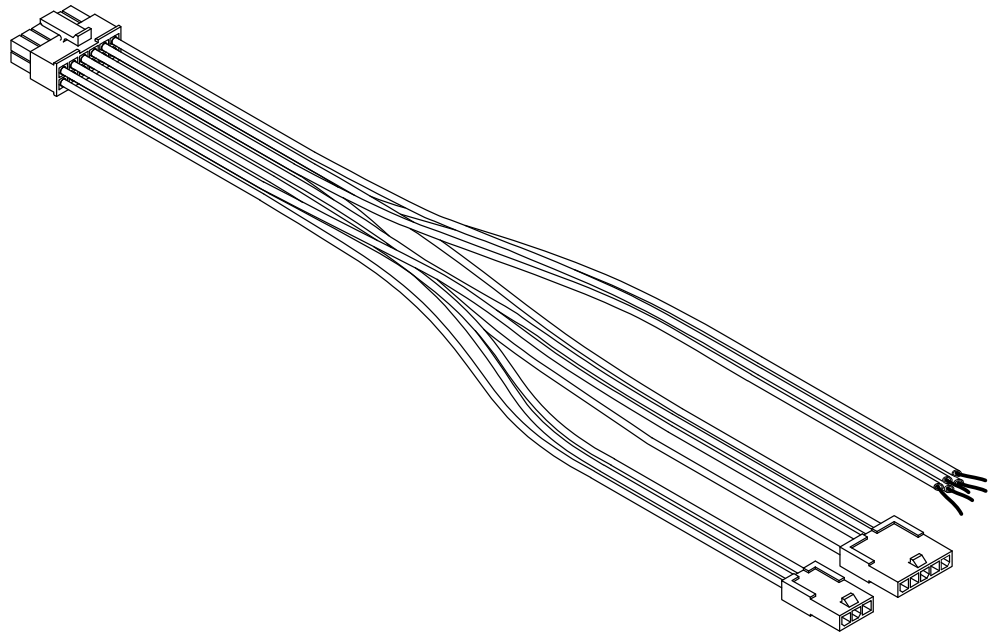
Route the wiring and cables away from sharp edges that might damage the insulation. Avoid sharp bends in the cable.

Feed the cable through the large cable grommets one at a time, or cut a space from the edge of the cable cover to the grommet and slide the cables into the grommet.

### 1.6.3. Adapter Harness Installation

**To install the adapter harness for signals and speed:**

1. Connect the 12-pin connector to the SIGNALS socket on the DVR.
2. Connect the 3-pin speed harness and 6-pin Signals harness to the Adapter harness.
3. Connect the wires as shown in [Figure 1 on page 1-3](#).

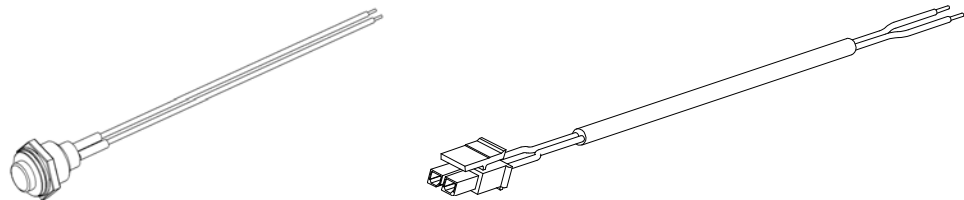


**Figure 1-4** Adapter Harness

### 1.6.4. Alarm Button Installation

**To install the alarm button:**

1. Mount the Alarm Switch into a 1/2" hole.
2. Attach the black wire of the Alarm Switch to the black wire of the Alarm Input harness. See [Figure 1-5 on page 1-9](#).
3. Attach the red wire of the alarm button to the red wire in the Alarm Input harness.
4. Connect the Alarm Input harness connector to the ALARM socket on the DVR.



**Figure 1-5** Alarm Button and Alarm Input Harness

### 1.6.5. Wake On Alarm Installation (Optional)

	<b>CAUTION</b>
<p>The Wake on Alarm starts the DVR when an alarm is triggered. The DVR takes about 1 minute to boot up before it can begin recording. It cannot instantly capture the alarm event.</p>	

When the Wake on Alarm function is enabled, if alarm 1 is triggered, the system powers up and starts recording. The system takes about one minute to power up and start recording, depending on environment conditions. This circuit activates with the application of 12 volts to the red wire in the two pin Alarm 1 socket on the back of the DVR.

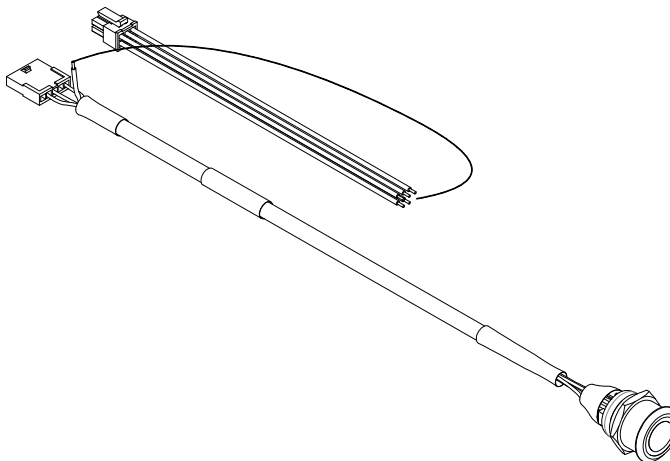
**To wire the Wake on Alarm feature:**

1. Connect the DVR's back panel alarm input harness connection (2 pin) so that pin 1 (red wire) is toggled to a 12-to-24 VDC source to trigger power.
2. Connect or remove the black wire of the alarm input harness.
3. Configure the DVR Alarm settings as described in the [Alarm Menu, on page 4-7](#).

**To wire the Wake on Alarm feature with a Diagnostic Button:**

**Important:** If you are using the Diagnostic Button and cable, and require the Wake on Alarm feature, the Diagnostic Button cable must be rewired as shown in [Figure 1-6](#).

1. On the Diagnostic Button cable, cut the green wire just before it enters the socket. See [Figure 1-6](#).
2. Extend and connect the green wire to an input wire on the Signals harness.



**Figure 1-6** Wiring Alarm Button and Signal harnesses for Wake on Alarm

3. Configure the DVR Alarm settings as described in the [Alarm Menu, on page 4-7](#).

### 1.6.6. Diagnostic Button Installation (Optional)

When installed, press the Diagnostic Button to cause an alarm event to be recorded by the DVR.

To install the Diagnostic Button, see the *Diagnostic Button Installation Guide*, document number 700-0142.

### 1.6.7. 12 Volt Installation Details



#### **CAUTION: Adverse operation of the DVR**

Seon does not recommend extending the power cable. Power drops created by additional wiring can cause adverse operation of the DVR. However, if a power cable extension is required, ensure that the voltage drop does not exceed 1.0 volt by using the correct cable size. See [Table 2](#). Connections for power cables should be soldered and sealed to prevent corrosion and voltage drop across connections. Once complete, ensure the DVR's voltage display is above 11 VDC with the vehicle off and the DVR recording.

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**Important:** Both the power and ground wires must be of increased gauge.

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**Table 2** 12 Volt Installation Cable Length and Size

Cable length	Cable size	Voltage drop
20 ft. extension	12 AWG	0.65 VDC
20 ft. extension	10 AWG	0.50 VDC
40 ft. extension	10 AWG	0.79 VDC
40 ft. extension	8 AWG	0.52 VDC

## 1.7. Hardware Installation Final Checklist

✓	<b>Harnesses (camera, recorder, and accessories)</b>
	Check that the cables and the harnesses are properly secured.
	Check that sharp metal edges are not touching the cables or harnesses.
	Check that the connections are solid (no shorts).
✓	<b>Cameras</b>
	Check for tight mount.
	Check the internal harness connections.
	Check that the lid is properly seated on the gasket and secured tightly.
	Check camera(s) field of view.
✓	<b>DVR</b>
	Check for tight mounting of hardware.
	Confirm that the cable grommet is properly installed.
	Check that all connections are tight.
✓	<b>System</b>
	Install the fuses.
	Plug the portable video monitor into the DVR.
	Power up the DVR from the vehicle ignition.
	Configure the DVR to required specifications locally using the trackball mouse and monitor, or remotely by accessing vMax Web via Wi-Fi or Ethernet using a PC. See <a href="#">Basic DVR Configuration Settings, on page 2-2</a> .
	Confirm the LAN, HDD, and PWR status indicators on the DVR front panel work properly:
	Confirm that all the cameras and audio sources are operating properly.
	Test audio/video record and test audio/video playback.
	Reformat the hard drives by navigating to Main Menu > Configuration > System > Program Update > Format. A warning message appears, "Formatting the Hard Drive will erase all data. Do you wish to continue?" Click <b>Yes</b> . Once formatting of the hard drive is completed, a confirmation message appears, "Hard drive format completed. Click <b>OK</b> ." Exit the configuration setting menu and system setup is complete.
	Fasten and lock the front cover. Secure the cable cover on the DVR using the screws provided.



## CHAPTER 2

# DVR Setup

This chapter provides information and procedures for configuring the Trooper TL.

This chapter contains the following sections:

[DVR Menu Access, on page 2-1](#)

[Basic DVR Configuration Settings, on page 2-2](#)

[vMax Web Laptop Configuration, on page 2-13](#)

[Connecting the DVR to the Laptop, on page 2-15](#)

## 2.1. DVR Menu Access

The DVR menus can be accessed locally with a monitor and mouse or a laptop. The menus can also be accessed remotely over a wireless network.

### Local access with On Screen Display (OSD) menus:

Connect to VIDEO OUT on the TL front panel with a portable video monitor and use a USB mouse to set the configuration settings. The password setting can be changed in the System Settings Menu.

### Local access with vMax Web menus:

Configure the network connection on the computer, then connect the DVR to a computer using an RJ-45 Ethernet cable. Use vMax Web to configure the DVR via Internet Explorer (32 bit version only).

To configure the Laptop network settings for vMax Web, see [vMax Web Laptop Configuration, on page 2-13](#).

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**Important:** The default network settings only allow connecting the DVR to a laptop using an Ethernet cable.

For remote network access, consult with your IT staff or Seon Design to configure the DVR to be on the same subnet as the laptop.

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### Remote access with vMax Web menus:

If you have Seon Smart Reach wireless access, you can also access the DVR remotely using vMax Web via Internet Explorer (32 bit version only).

## 2.2. Basic DVR Configuration Settings

The DVR menu defaults cover most operation settings, but some basic customer and region-specific settings need to be configured for the DVR to operate optimally.

**Table 1** DVR Menu Configuration Requirements

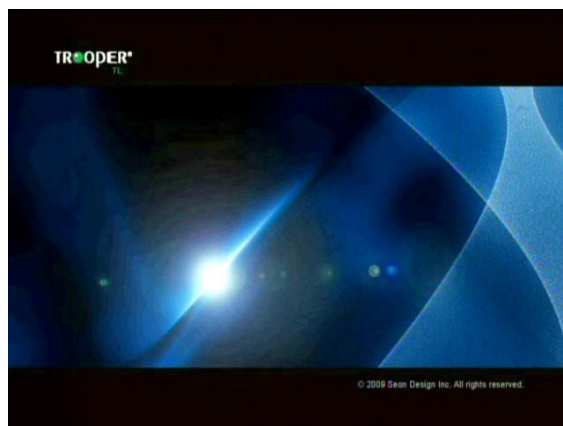
Menu	Required Setting
Time/Date	Select the date display format. If GPS is not used, enter the current time and date.
Title/Display	Enter the vehicle number and camera view names to display in overlay text.
Diagnostic Display	If the DVR is used in Canadian fleets, select the Celsius DVR temperature display.
Record	Set the Record Delay Off to 15-20 minutes for post trip check. If Wi-Fi is used, set the Power Delay Off to 2 hours for archive download.
Camera	Turn off any unused camera channels, to avoid VLOSS events.
Alarms	Configure each alarm depending on source. Signals, Speed, GPS fence, Wake
Signals	Configure which signals will trigger alarms.
Speed	If the DVR is used in Canadian fleets, select the KPH speed units. Select GPS if GPS is installed.
GPS	If GPS is installed, set GPS Time to On to detect time and vehicle location. Select the time zone.
G Sensor	Set thresholds and alarm event outputs.
Network	If Wi-Fi network is used, set addresses as instructed by administrator.
System	Select the audio channel to output from the DVR audio RCA socket.
Program Update	Upload DVR configuration if necessary. Format the hard drive after all settings have been made.

Once the unit is installed and power and cabling settings are complete, set up the DVR in the configuration menus. These are the typical DVR configuration settings.

If the customer wishes to further modify the settings, see [DVR Configuration Menus, on page 4-1](#) for a complete description of all available menu options.

These steps cover configuration in the DVR OSD. Configuration can be done in the DVR OSD with a monitor and USB mouse or remotely with vMax Web via Wi-Fi or Ethernet cable in Internet Explorer 8 or 9 (32 bit version only).

On power-up, with a monitor and USB mouse connected to the DVR, the Seon Trooper TL4 splash screen appears briefly before the DVR enters live view.



**Figure 2-1** TL Splash Screen

During recording and live viewing, the screen information is dynamic and can include the items shown in [Figure 2-2](#).



**Figure 2-2** On-Screen Display during Live Viewing and Recording

**Basic DVR configuration settings:**

- 1. In the live view, right click anywhere to show the DVR Main menu. Left click on **Configuration**.



**Figure 2-3** Main Menu

- 2. In the Configuration menu, click **Time/Date**.



**Figure 2-4** Configuration Main Menu

**Note:** To enter data in OSD fields, click with the mouse to display a keyboard. Use the on screen popup keyboard to select letters or numbers to input to fields. Examples are shown in [Figure 2-5](#).



**Figure 2-5** On-screen Keyboard with Text or with Numbers

3. In the Time and Date menu, select the following fields to show time and date for the video overlays:



**Time Format:** Choose 12 or 24 hour time display format.

**Time:** Input the correct time.

**Date Format:** Select the date format.

**Date:** Input the correct date.

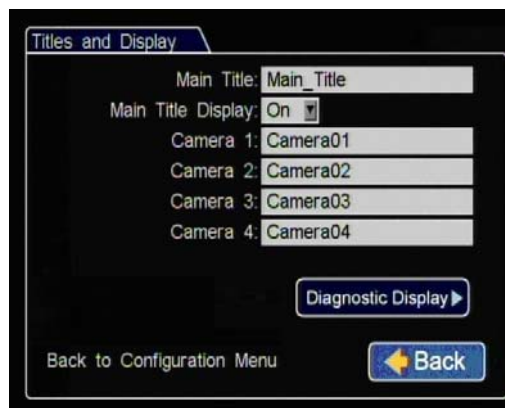
**Note:** If GPS is installed and GPS time is selected in the Alarm/Signal Speed and GPS settings then the date and time automatically update when the GPS detects satellites.

**Auto Daylight Saving:** should be left On and dates left as default unless in a geographic area that does not subscribe to daylight savings such as Arizona or Saskatchewan.

Click **Back** to save the menu settings.

**Figure 2-6** Time and Date Menu

4. In the Configuration menu, click **Titles/Display**.
5. In the Titles and Display menu, enter vehicle ID and camera output labels to display on overlay and menus.



**Main Title:** Enter the bus number.

**Main Title Display:** Leave On to display.

**Camera 1-4:** Select camera titles that reflect the views they are recording. Typical camera titles are:

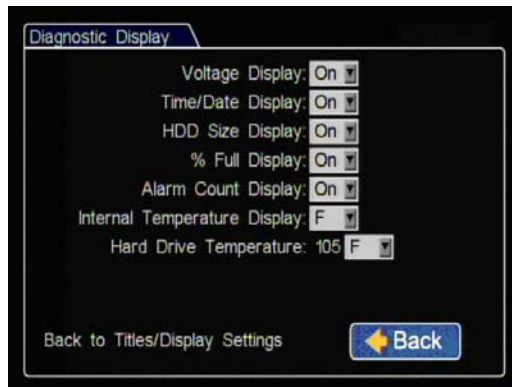
- Front
- Step
- Mid
- Rear
- Stop Arm

Click **Back** to save the menu settings.

**Figure 2-7** Titles and Display Menu

6. In the Titles and Display menu, click Diagnostic Display.

7. In the Diagnostic Display menu, select options to display as overlays in the play view.



The diagnostic display options are a customer preference. Leave all these settings On.

**Internal Temp Display:** For temperature measurement display, leave on default F for Fahrenheit (USA) or choose C for Celsius (Canada).

Click **Back** to save the menu settings.

**Figure 2-8** Diagnostic Display Menu

8. In the Configuration menu, click Record.
9. In the Record menu, set up record and power delay timers.



**Repeat Record:** Leave at default for the hard drive to loop and record over the first recordings when it is full.

**Record Delay On Time:** This sets the time period from when ignition is turned on until the DVR starts. Leave at default to let the bus voltage settle after the bus starts up to prevent voltage drops affecting the DVR.

**Record Delay Off Time:** Set to 10-20 minutes to keep the DVR and cameras on after the ignition turns off to record the bus post-trip check.

**Power Delay Off Time:** This delay begins after Record Delay Off time ends. This sets the time delay from the record delay till power is shut off. During this time the cameras are turned off and recording is stopped. If Wi-Fi is used, set to 2 hours or more. If no Wi-Fi, leave at default.

**Alarm Partition Size:** Leave Off unless instructed otherwise.

**Analog Record2:** Leave at 5 FPS unless instructed otherwise.

Click **Back** to save the menu settings.

**Figure 2-9** Recording Settings Menu

10. In the Recording Settings menu, click Camera. Set the recording parameters for each camera here.



New titles will display here as well as in the play view overlays.

**Speed:** Leave the channel speed at default settings unless you have special requirements. Set any unused cameras' speed to Off, so the DVR will not generate video loss events.

**Resolution:** Leave the channel resolution at default settings unless you have special requirements.

**Quality:** Leave the channel quality at default settings unless you have special requirements.

**Audio:** Leave audio settings On unless the camera is mounted on the exterior of the vehicle or if you have special requirements.

Click **Back** to save the menu settings.

**Figure 2-10** Camera Settings Menu

### CAUTION: Set Unused Cameras Off

When a DVR is installed with less than the full complement of cameras connected, disable unused camera input settings to prevent the DVR from generating Video Loss (VLoss) events for those camera inputs. In the DVR Configuration menus, disable unused camera inputs as follows:

- Record Settings menu: Camera Speed OFF,  
Camera Audio OFF (to save disk space)
- Alarms/Signals menu: Channel Speed OFF.

11. In the Recording Settings menu, click Timers only if you have a specific requirement for timers.




Leave the **Enable Timers** setting set to Off, unless instructed otherwise and provided specific start and end timer information.

The timer function can only operate when the ignition is on. It cannot be set to record when the vehicle is off.

Click **Back** to save the menu settings.

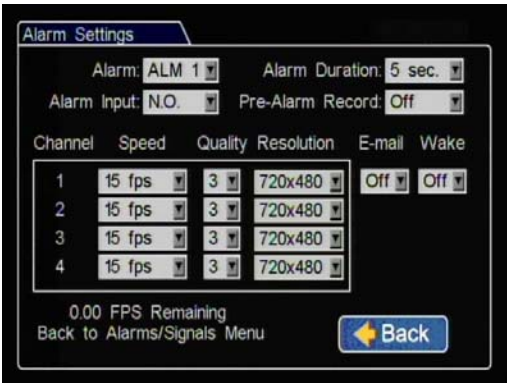
**Figure 2-11** Timer Settings Menu

- 12. In the Configuration menu, click Alarm/Signal.
- 13. In the Alarms and Signals menu, click Alarms.



**CAUTION: Select Menu Options for Each Alarm**

From the Alarm drop down list, when any alarm (ALM 1, ALM 2, ALM3, or ALM 4) is selected, ALL of the settings on the Alarm Settings menu must be configured for that alarm. Configure settings for each alarm.



**Alarm:** By default, Alarm 1 is connected to the DVR alarm button. Alarms 2-4 can come from signals, GPS geo-fencing, G sensor, or excessive speed.

**Duration:** Set the Duration for how long the DVR will record video flagged at the alarm record settings.

**Speed, Quality, and Resolution:** For each alarm, select record settings to be used for the duration

of the Alarm. Turn off unused channels to avoid DVR video loss events.

**Input:** Applies to Alarm 1 only. Choose Normally Open or Normally Closed, depending on the switch type used.

**Pre-Alarm:** Select how many seconds of pre-alarm video is included in the flagged alarm recording.

**Email:** This setting is used to automatically send an email when this alarm is triggered. Leave at default unless instructed otherwise.

**Wake:** Applies to Alarm 1 only. Use this setting to configure Alarm 1 to be able to Wake the DVR. Leave at default unless instructed otherwise.

Click **Back** to save the menu settings.

**Figure 2-12** Alarm Settings Menu



14. In the Alarms and Signals menu, click Signals.



**Label:** For signals 1-5, labels are provided for left turn, stop, brake, warning light, and right turn. The labels can be edited and changed, maximum 3 characters.

**Level:** Set all signal levels as required. Choose Active High if the circuit you are installing into rests at 0 VDC and goes to 12 VDC when active. Choose Active Low if the circuit rests at 12 VDC and drops to 0 VDC when active.

**Alarm:** Select the alarm number if the signal is also to be used to trigger an alarm. That alarm's input must also be set up in the Alarms menu.

Click **Back** to save the menu settings.

**Figure 2-13** Signals 1 to 5 Menu

The DVR signal harness has 5 dedicated signal input wire connections:

- LT - black wire
- STP - green wire
- BRK - red wire
- WRN - brown wire
- RT - white wire

15. In the Alarms and Signals menu, click Speed.



**Speed Display:** Select speed input type (GPS or Pulse). If GPS is installed, select GPS.

**Speed Units:** Choose MPH for US or KPH for Canada.

**Speed Pulse Count:** Displayed if Pulse is selected from Speed Display. Click **Calibrate** to set the Pulse speed sensor if Pulse is selected from **Speed Display**.

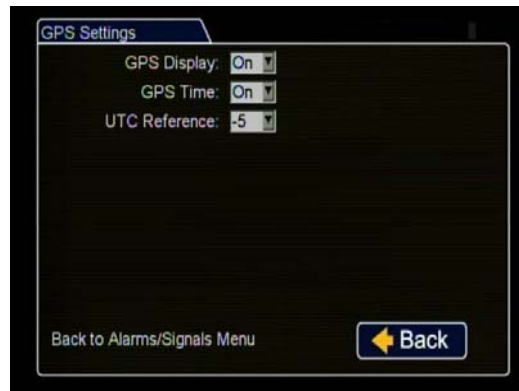
**Speed Limit:** Enter the speed limit which will trigger the excessive speed alarm when exceeded.

**Excessive Speed Action:** Select the alarm which will be triggered by excessive speed.

Click **Back** to save the menu settings.

**Figure 2-14** Speed Settings Menu

16. In the Alarms and Signals menu, click GPS.



**GPS Display:** If a GPS receiver is installed, select On to display the coordinates on the play view overlay.

**GPS Time:** Select On to have the play view overlay time set by the GPS.

**UTC Reference:** Set the time zone:

- 4 Atlantic
- 5 Eastern
- 6 Central
- 7 Mountain
- 8 Pacific

Click **Back** to save the menu settings.

Format the drive after GPS settings are complete.

**Figure 2-15** GPS Settings Menu



### **CAUTION: Recording over Multiple GPS UTC Reference Settings**

Whenever the GPS UTC reference setting is edited, format the DVR hard drive before the DVR starts recording.

This is to prevent the DVR from accidentally recording over the same time period in different time zones. That can happen if a DVR records for a while in the default Eastern UTC reference setting but the DVR is installed in a Central or other western time zone.

After installing and configuring, if the bus is driven out of the garage and the GPS detects satellites and resets the time, it can attempt to record the same existing time stamp and cause errors on playback.

17. In the Configuration menu, click Network to edit the DVR network settings.



### CAUTION: Network and Advanced Settings

Network and Advanced network settings should only be configured by Seon Engineering Services or the fleet system administrator.

**Setting Type:** Leave at default Static IP setting.

Use the IP address shown to communicate with the DVR over the internet with vMax Web.

If the DVR is attached to a Wi-fi bridge, change these settings to those supplied by the system administrator.

If the IP information is changed and saved in a configuration file for upload to other DVRs, their settings will have to be updated as well.

See [DVR Menu Access](#), on page 2-1.

**Figure 2-16** Network Settings Menu

18. In the Network Settings menu, click Advanced, then User Levels to assign users access permissions.

User	Name	Password	Level
1	Admin	*****	Administrator
2			Playback
3			Playback
4			Playback
5			Playback
6			Playback

Users logging on to the DVR locally or remotely should have password control to protect the DVR from being accidentally reconfigured. Leave the default Admin user and add other users with access levels as needed.

Enter user names, passwords, and assign levels:

**Admin** level user has complete DVR control.

**Configure** level cannot edit user levels or IP settings.

**Playback** level can only view and archive recordings.

Click **Back** to save the menu settings.

**Figure 2-17** User Levels Menu



### CAUTION: DVR Password Security

The default password is 11111111. For security purposes, Seon recommends that the user default login and system settings passwords should be changed. Seon is not responsible if the password is lost or forgotten.

19. In the Configuration menu, click System and in System Settings menu, configure as follows.



**Disk Full, HD Failure:** Leave Off unless your network is configured to receive emails from the DVR.

**Password Enable:** Leave Off unless instructed otherwise.

**Audio Output Channel:** Select the default audio channel that will be available from the audio RCA port on the front of the DVR.

**vMax Web Timeout:** Leave at default 10 minutes.

Click **Back** to save the menu settings.

**Figure 2-18** System Settings Menu

20. In the System Settings menus click Program Update and in the Program Update menu, store the DVR configuration as a file to upload to other DVRs.



Select USB Device as the file saving destination. Plug a USB memory device into the front of the DVR. Click **Store** to save the file on the USB memory device.

**Load:** For details on uploading configurations to the DVR, see [DVR Menu Access, on page 2-1](#).

**Update:** Firmware updates can also be delivered by a USB device. The DVR will reboot when done.

**Format:** Format the hard drive when the configuration is complete and before final delivery of the installation to the customer.

Click **Back** to save the menu settings.

**Figure 2-19** Program Update Menu

## 2.3. vMax Web Laptop Configuration

The TL DVR can be managed using vMax Web using Internet Explorer (32 bit version only) with the laptop connected to the DVR using an RJ-45 Ethernet cable.

Make sure the DVR and other system components are already installed and configured in order to access the DVR via vMax Web.

Configure your laptop to obtain IP addresses automatically, using DHCP (Dynamic Host Configuration Protocol). If it is not configured to DHCP, or you need to verify the setting, then follow these steps to configure your laptop.

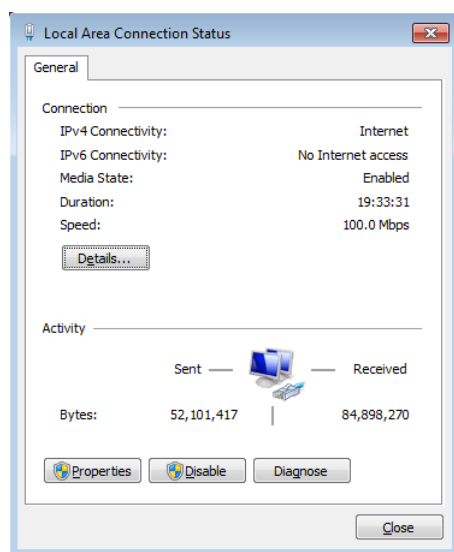
### To configure your laptop:

1. Navigate to Windows Local Area Connection properties in Windows 7 or XP as follows:

**Windows 7:** click Start > Control Panel > Network and Internet > Network and Sharing > Local Area Connection.

**Windows XP:** click Start > Control Panel > Network Connections > Local Area Connection.

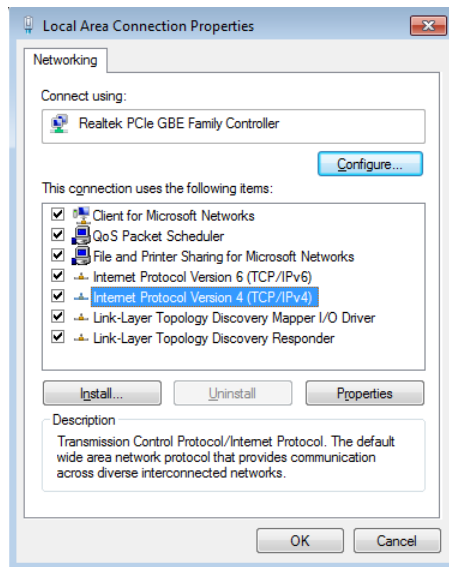
The Local Area Connection Status window appears.



**Figure 2-20** Local Area Connection Status window

2. In the Local Area Connection Status window, click on Properties.

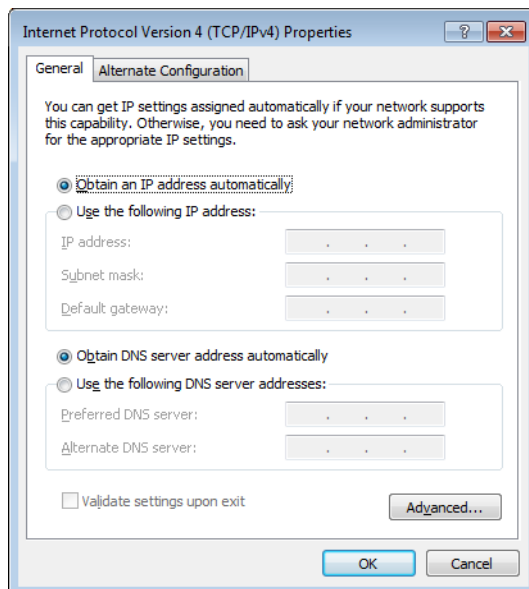
The Local Area Connection Properties window appears.



**Figure 2-21** Local Area Connection Properties window

3. In the Local Area Connection Properties window, select the click to highlight the current **Internet Protocol Version**, (in Windows XP select **Internet Protocol (TCP/IPv4)**), and then click **Properties**.

The Internet Protocol Version Properties window appears.



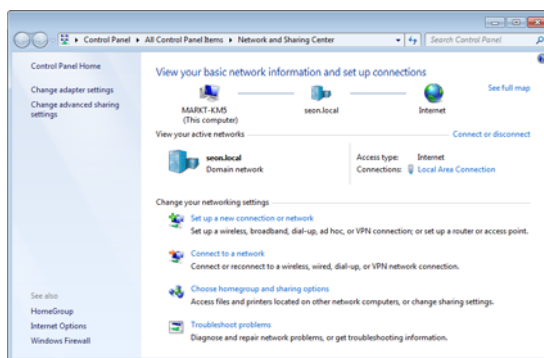
**Figure 2-22** Internet Protocol Properties window

4. In the Internet Protocol Properties window, select **Obtain an IP Address Automatically**. Click OK and then close the Windows dialogs.
5. Continue to connect the DVR to a laptop instructions.

### 2.3.1. Connecting the DVR to the Laptop

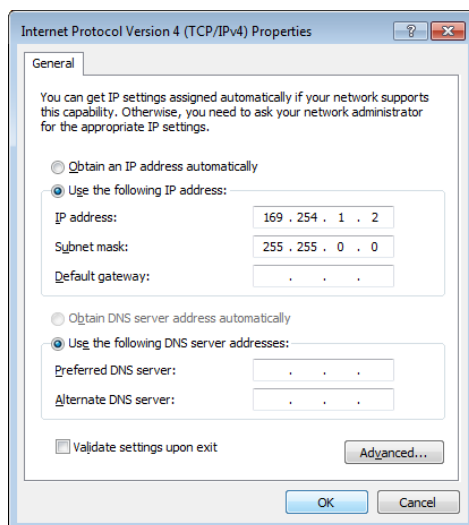
#### To connect the DVR to the laptop:

1. Connect one end of the Ethernet cable to a network port on the laptop. Connect the other end to a network port on the DVR.
2. The laptop uses Automatic Private IP Addressing (APIPA)<sup>1</sup> to select an IP address. This process may take up to 90 seconds.
3. Once connected, the laptop Local Area Connection should report limited connectivity using an Automatic Private IP Address. Confirm by opening your network connections.



**Figure 2-23** Network Connections

4. In very rare instances, the laptop may select the same IP address, **http://169.254.1.1**, used by the DVR and cause a conflict. If this is the case, manually set the laptop IP address to **http://169.254.1.2**. Click Ok and then close the Windows dialogs.

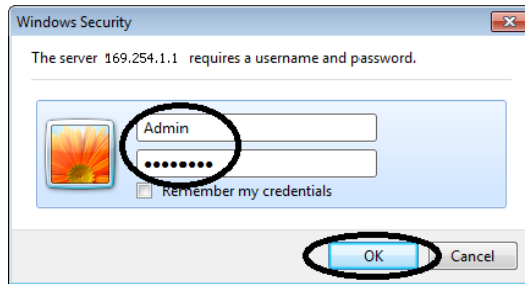


**Figure 2-24** Update IP Address

1.APIPA is a feature available since Windows 98 that allows for devices to provide their own IP address when there is no DHCP server present.

- Open Internet Explorer and, in the address bar, type in the DVR default IP address: **http://169.254.1.1**. Click Enter.

The DVR Login screen appears.



**Figure 2-25** DVR Login Screen

- At the login prompt, enter the user name and password to access the internet browser user interface. The user name is case sensitive.

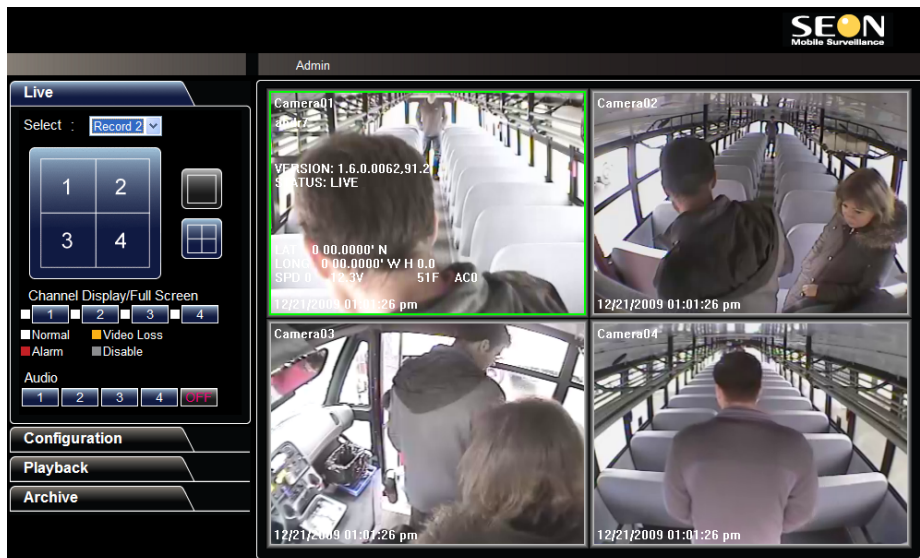


### CAUTION: DVR Password Security

The default password is 1111111. For security purposes, Seon recommends that the user default login and system settings passwords should be changed. Seon is not responsible if the password is lost or forgotten.

- Click Ok.

vMax Web opens with the DVR cameras displaying in Live view.



**Figure 2-26** vMax Web Live View

- See the DVR User manual for details on using the vMax Web.







## CHAPTER 3

# Advanced Setup

This chapter provides information on uploading configuration files and firmware updates to the DVR, and setting up email notifications when events are detected on the DVR.

**CAUTION: Administrator Permissions Required**

These procedures should only be performed by administrator level staff. If you have questions about these procedures, contact Seon support.

This chapter contains the following sections:

DVR Configuration Uploads, on page 3–2

Configuration Upload from USB Memory Device, on page 3–2

Configuration Uploads in vMax Web, on page 3–6

DVR Firmware Updates, on page 3–10

Email Notifications, on page 3–11

On-Screen Display Email Setup, on page 3–11

vMax Web Email Setup, on page 3–14

## 3.1. DVR Configuration Uploads

A configuration file is usually uploaded to a DVR when the DVR is first installed or when settings need to be changed on multiple DVRs in a fleet.

Configuration files can be uploaded at the DVR with a USB memory device or over the network using vMax Web or vMax Commander applications.

To upload configurations with vMax Commander, see the vMax Commander Installation and Configuration Guide (700-0100).

### 3.1.1. Configuration Upload from USB Memory Device

This method requires physical access to the DVR, a portable video monitor, and a USB mouse.

To load a configuration update to the DVR, the USB memory device must be formatted by a Windows-based computer using the FAT file format.

#### To upload a configuration update on the TL via USB:

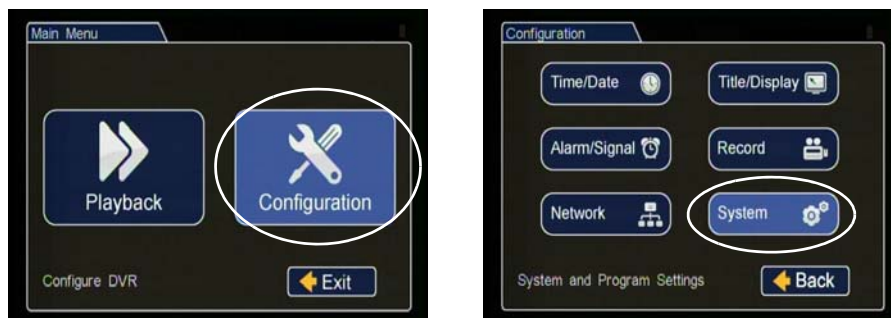
1. Copy the configuration file at the root of the USB memory device folder.

---

**Important:** For USB uploading, the configuration file name can have no more than four characters.  
Example: \*TL4.seon.

---

2. Power up the DVR using the vehicle ignition.
3. Connect the portable video monitor and USB mouse.
4. Insert the USB memory device into the USB port on the DVR.
5. In the DVR on screen display, right click to open the menu, click Configuration, and then click System.



**Figure 3-1** Main Menu and System Menu

6. In the System Settings menu click Program Update.



**Figure 3-2** System Settings Menu

7. From the Load Configuration menu, select the file to upload and click Load.




**Figure 3-3** Loading USB Configuration

---

**Important:** The Load Configuration drop down list only displays the ten most recent configuration files on the USB drive. Only file names with 4 or less characters can be displayed.

---

- 8. From Include Network, select whether or not to overwrite the existing DVR network settings with the new configuration settings. The default setting of NO keeps your existing network settings.



**CAUTION: DVR Communication Disruption Risk**

Avoid unintentionally changing the DVR network settings when uploading a new configuration. When saving or changing network settings, communication with the DVR can be disrupted.



Figure 3-4 Program Update Menu Include Network

- 9. Click Load.



Figure 3-5 Program Update Menu Load

- 10. In the DVR configuration confirmation dialog, click Yes to proceed.

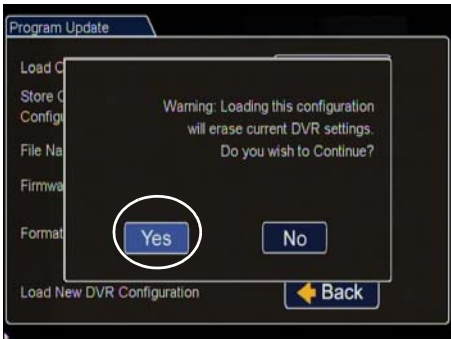



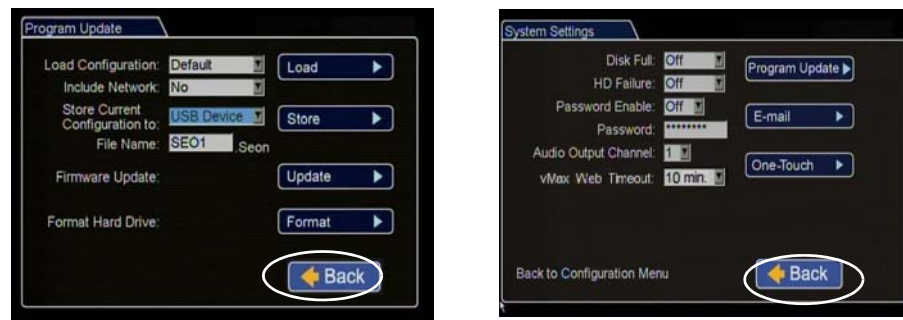
Figure 3-6 Load Configuration: Warning Message



### CAUTION: Risk of Network Settings Loss

Configurations uploaded to the DVR from USB do not get written to the DVR until it powers down and restarts. If the DVR settings are edited locally after this configuration is uploaded but before the DVR is restarted, the settings uploaded from the USB device will be lost.

11. Click Back in the Program Update and then System Settings menus to save and exit the menus.



**Figure 3-7** Click Back to Save Configuration

12. From the Configuration menu, click Title/Display, and in the Titles and Display menu, update the text in the Main\_Title field.



**Figure 3-8** Titles and Display Menus

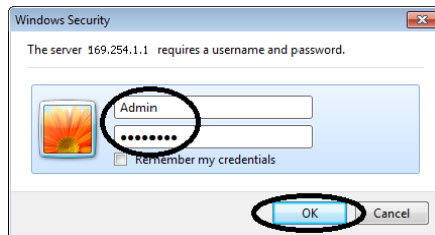
13. Click Back to save.
14. Remove the USB memory device.
15. If required, update the network settings.
16. Turn off the DVR, restart the DVR, and confirm that the new configuration settings have been applied.

### 3.1.2. Configuration Uploads in vMax Web

To remotely install a configuration update, the configuration file (received from Seon or created and saved from a DVR in your network) must be on a computer with Wi-Fi or Ethernet network access to the DVR and with Internet Explorer 8, 9, or 10 (32 bit version only) to access vMax Web.

**To upload a configuration update to the TL via vMax Web:**

1. On a computer connected to the DVR, copy the DVR configuration file.
2. Power up the DVR using the vehicle ignition.
3. Open Internet Explorer and type the DVR IP address in the address bar.  
The Seon default IP address is `http://169.254.1.1`.
4. If necessary, agree to Windows Run Add-On requests.
5. At the login prompt, enter a user name and password. User names and passwords are case sensitive.



**Figure 3-9** DVR Login Screen



#### **CAUTION: DVR Password Security**

The default password is 11111111. For security purposes, Seon recommends that the user default login and system settings passwords should be changed. Seon is not responsible if the password is lost or forgotten.

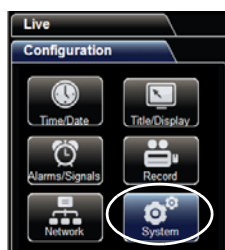
6. Click Ok.  
vMax Web opens with the DVR cameras displaying in Live view.



**Figure 3-10** vMax Web Live View

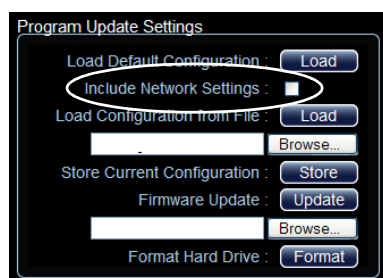


7. Select the Configuration tab and on the Configuration tab, click the System icon.



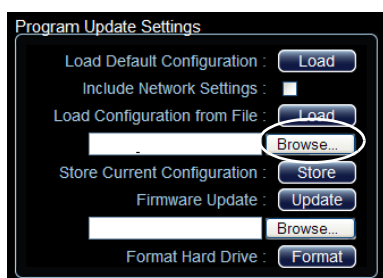
**Figure 3-11** vMax Web System Settings

8. In the Program Update Settings area, the default (cleared) Include Network Settings check box setting keeps your existing network settings during the configuration upload. Select the Include Network Settings check box only if you need to overwrite the existing DVR network settings with the new configuration settings.



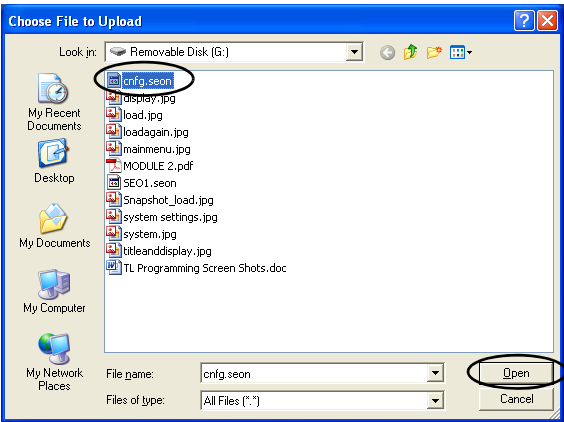
**Figure 3-12** vMax Web System Configuration Program Update Settings

9. In the Program Update Settings area, below the Load Configuration from File field, select Browse to open the computer search window.



**Figure 3-13** vMax Web Program Update Settings

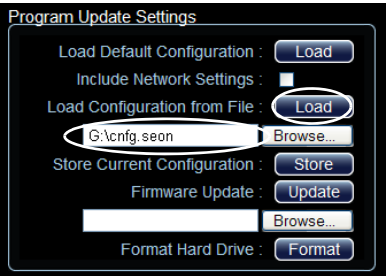
10. In the computer file search window, navigate to the configuration file and click Open.



**Figure 3-14** Windows File Search

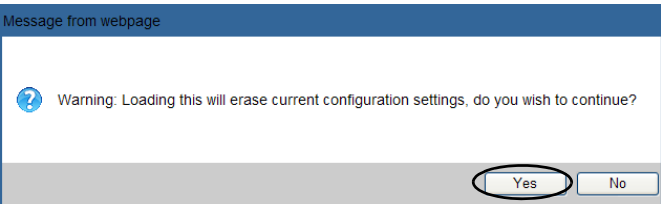
**Important:** For consistency, Seon recommends that the configuration upload file name should be kept to four characters maximum (\*\*\*\*.seon) in the event that the file needs to be loaded to the DVR from the USB port. The DVR USB upload interface supports only four characters in the file name.

The configuration file name and location appear in the location field.



**Figure 3-15** vMax Web Load Configuration from File

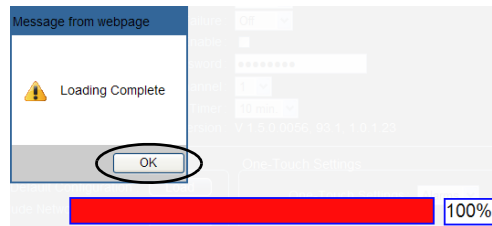
11. Beside the Load Configuration from File field, click Load.  
12. In the Message from web page dialog, click OK to start the configuration upload.



**Figure 3-16** Loading Confirmation

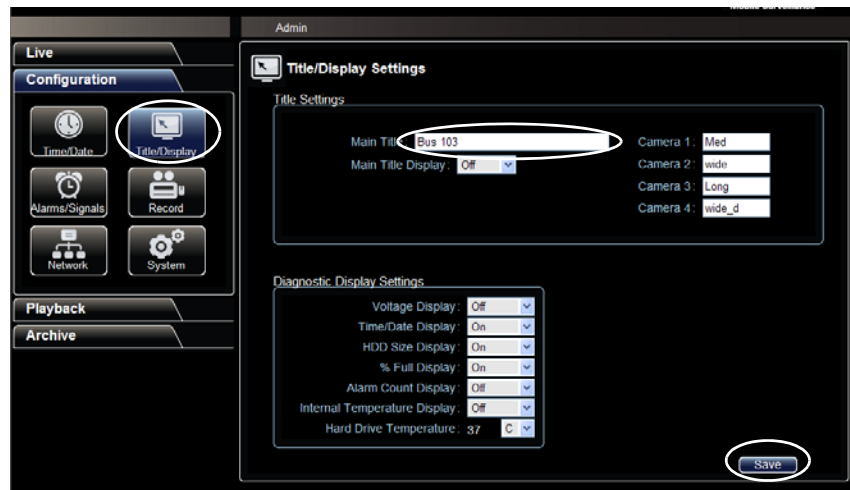
13. If necessary, agree to Windows Run Add-On requests.

14. When the progress bar shows the update is 100% complete, click OK.



**Figure 3-17** Loading Complete

15. In the Titles/Display menu, update the text in the Main\_Title field.




**Figure 3-18** vMax Web Titles and Display Menu

16. Click Save to save the settings to the DVR.
17. If required, update the network settings.
18. Power down and restart the DVR.
19. Login with vMax Web and refresh the vMax Web browser view.
20. Confirm that the new configuration settings are in place.

## 3.2. DVR Firmware Updates

The firmware version is displayed on the top right corner of every menu. The firmware update must be obtained from Seon Design. To install a firmware update, a USB memory device must be formatted by a Windows®-based computer using the FAT file format.

	<p><b>CAUTION: Equipment damage</b></p> <p>Do not remove power while updating the DVR firmware. Equipment damage may result.</p>
---	--

### To install a firmware update on the TL DVR:

1. Load the Program Update file onto the USB memory device formatted by a Windows®-based computer using the FAT file format.
2. Power up the DVR using the vehicle ignition.
3. Insert the USB memory device with the new firmware version into the USB port on the DVR. After the DVR has started, go to the System Settings menu > Program Update.
4. Click Update, and in the confirmation window, click Yes to proceed.



**Figure 3-19** Updating DVR Firmware Dialog Box

5. Once the update is finished, the DVR will automatically restart when the ignition is on, or restart into temp power mode if the ignition is off.

---

**Important:** On restarting, the DVR will take up to 3 minutes to load as it completes the upgrade process. Wait until the DVR finishes loading.

---

6. Confirm the DVR firmware version has updated.
7. Remove the USB memory device.

### 3.3. Email Notifications

If using the iVML live video streaming feature, do not use DVR email.

If required by the customer, Seon DVRs can be configured to send emails when certain events are recorded. An SMTP server is required to support network email addresses.

When the DVR is in range of a network, an email will be sent, the alarm recording can be viewed remotely, and the event can be addressed.

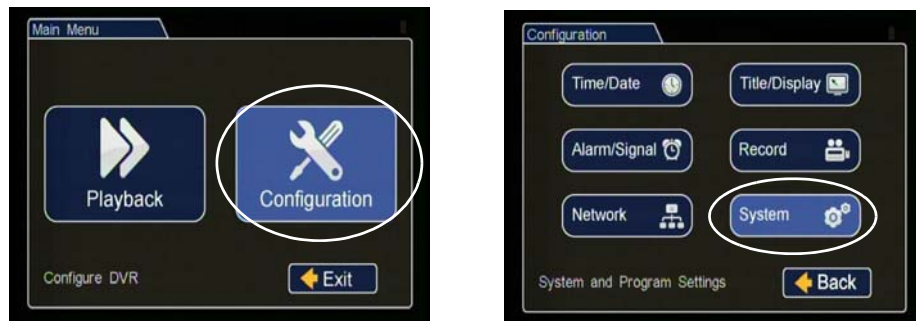
Set up the DVR to send emails locally or remotely using the following steps:

On-Screen Display Email Setup, on page 3-11

vMax Web Email Setup, on page 3-14.

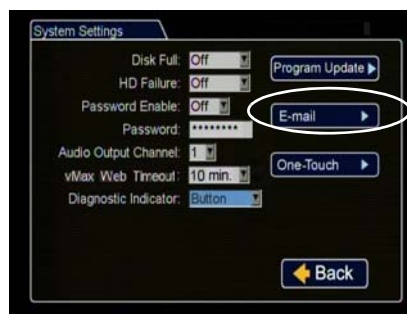
#### 3.3.1. On-Screen Display Email Setup

1. Power up the DVR using the vehicle ignition.
2. Connect monitor and mouse to the DVR.
3. In the DVR on screen display, right click to open the menu, click Configuration, and then click System.



**Figure 3-20** Main Menu and Configuration Menu

4. In the System Settings menu, click E-mail.



**Figure 3-21** System Settings Menu

- 5. In the E-mail settings menu, populate the E-mail configuration fields as required.

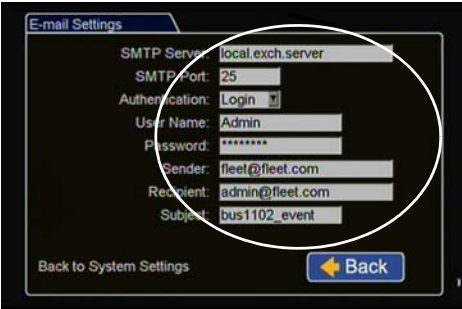


Figure 3-22 E-mail Settings Menu

- 6. Click Back to save.
- 7. In the System Settings menu set the Disk Full and HD Failure options to E-mail.



Figure 3-23 System Settings Menu

- 8. Click Back to exit the System configuration menu.
- 9. In the main Configuration menu, click Alarm/Signal.



Figure 3-24 Configuration Menu

10. In the Alarm/Signal menu, click Alarms.



**Figure 3-25** Alarms and Signals Menu

11. In the Alarm Settings menu, select the alarm from the drop down list, and set Email to On.



**Figure 3-26** Alarms Settings Menu

12. Repeat for all alarms requiring email notification.
13. Click Back to save and exit the configuration menus.

If the configured alarm or system events occur, an email will be sent when the DVR connects to a network.

### 3.3.2. vMax Web Email Setup

1. In the Network Email settings window, populate the E-mail configuration fields as required.

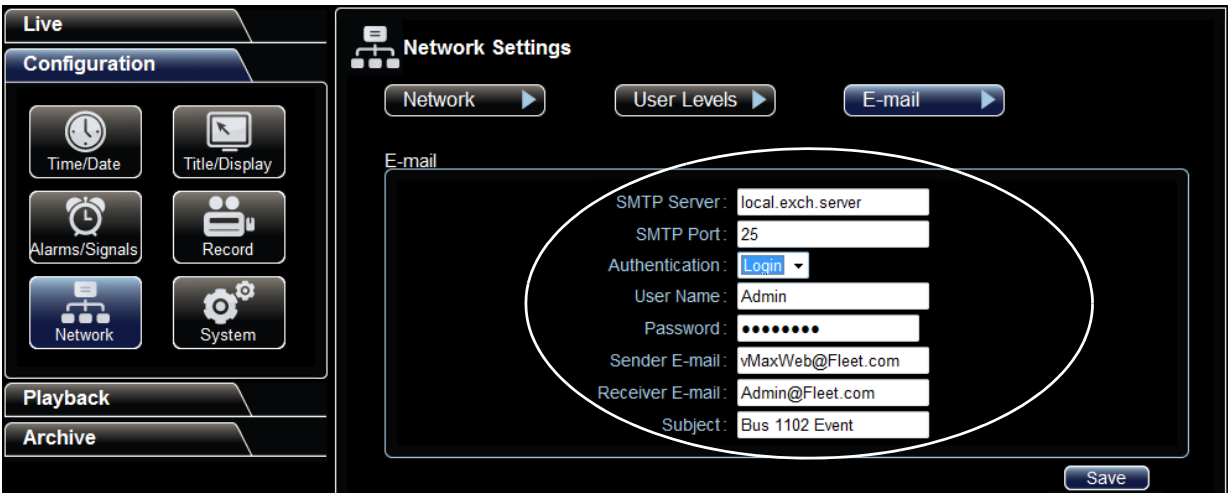


Figure 3-27 vMax Web E-mail settings

**CAUTION: DVR Password Security**

The default password is 11111111. For security purposes, Seon recommends that the user default login and system settings passwords should be changed. Seon is not responsible if the password is lost or forgotten.

2. In the Alarm configuration menu, select the E-mail check box for each alarm configuration requiring email notification.

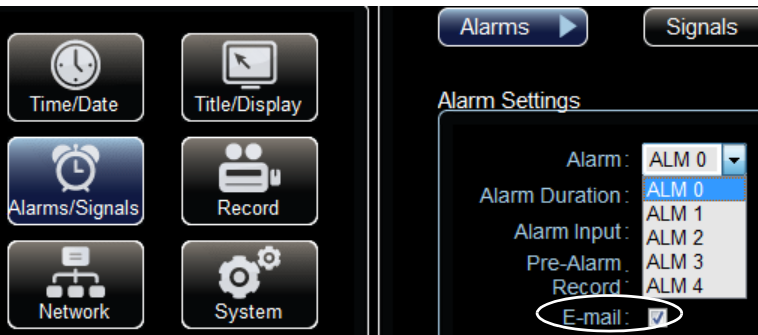
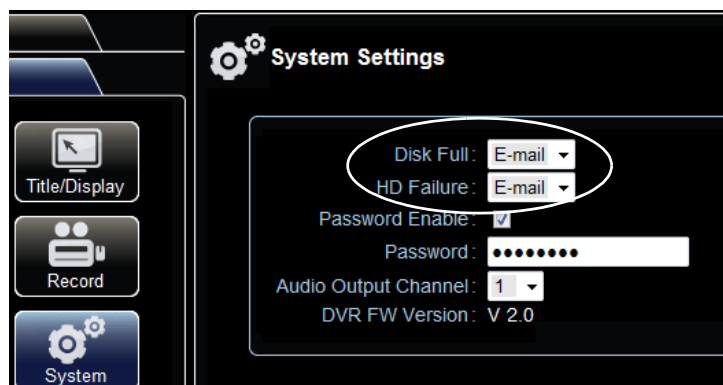


Figure 3-28 Alarm Email Setting



3. In the System menu, select E-mail from the Disk Full and HD Failure drop down menus.



**Figure 3-29** System Settings Email

4. Click Save.  
If the configured alarm or system events occur, the email will be sent when the DVR is within range of a Smart-Reach access point.



## CHAPTER 4

# DVR Configuration Menus

This chapter describes the functions and defaults of the fields and options on each configuration menu.

This chapter contains the following sections:

[DVR Configuration Menu Tree, on page 4-2](#)

[Time and Date Menu, on page 4-3](#)

[DST \(Daylight Savings Time\) Settings Menu, on page 4-4](#)

[Titles and Display Menu, on page 4-5](#)

[Diagnostic Display Menu, on page 4-6](#)

[Alarms and Signals Menu, on page 4-6](#)

[Alarm Menu, on page 4-7](#)

[Signals Menu, on page 4-9](#)

[Speed Menu, on page 4-10](#)

[GPS Settings Menu, on page 4-11](#)

[Recording Settings Menu, on page 4-12](#)

[Camera Settings Menus, on page 4-13](#)

[Timer Settings Menus, on page 4-14](#)

[Network Settings Menu, on page 4-15](#)

[Advanced Network Menu, on page 4-16](#)

[VMS Servers Menu, on page 4-17](#)

[Supervisor Menu, on page 4-18](#)

[User Levels Menu, on page 4-19](#)

[DDNS \(Dynamic Domain Name Server\) Settings Menu, on page 4-20](#)

[System Settings Menu, on page 4-21](#)

[Program Update Menu, on page 4-22](#)

[E-mail Settings Menu, on page 4-24](#)

[One-Touch Settings Menu, on page 4-25](#)

# 4.1. DVR Configuration Menu Tree

The TL Configuration Main Menu shown in Figure 4-1 applies to the on screen display configuration and to the Web browser configuration menus.

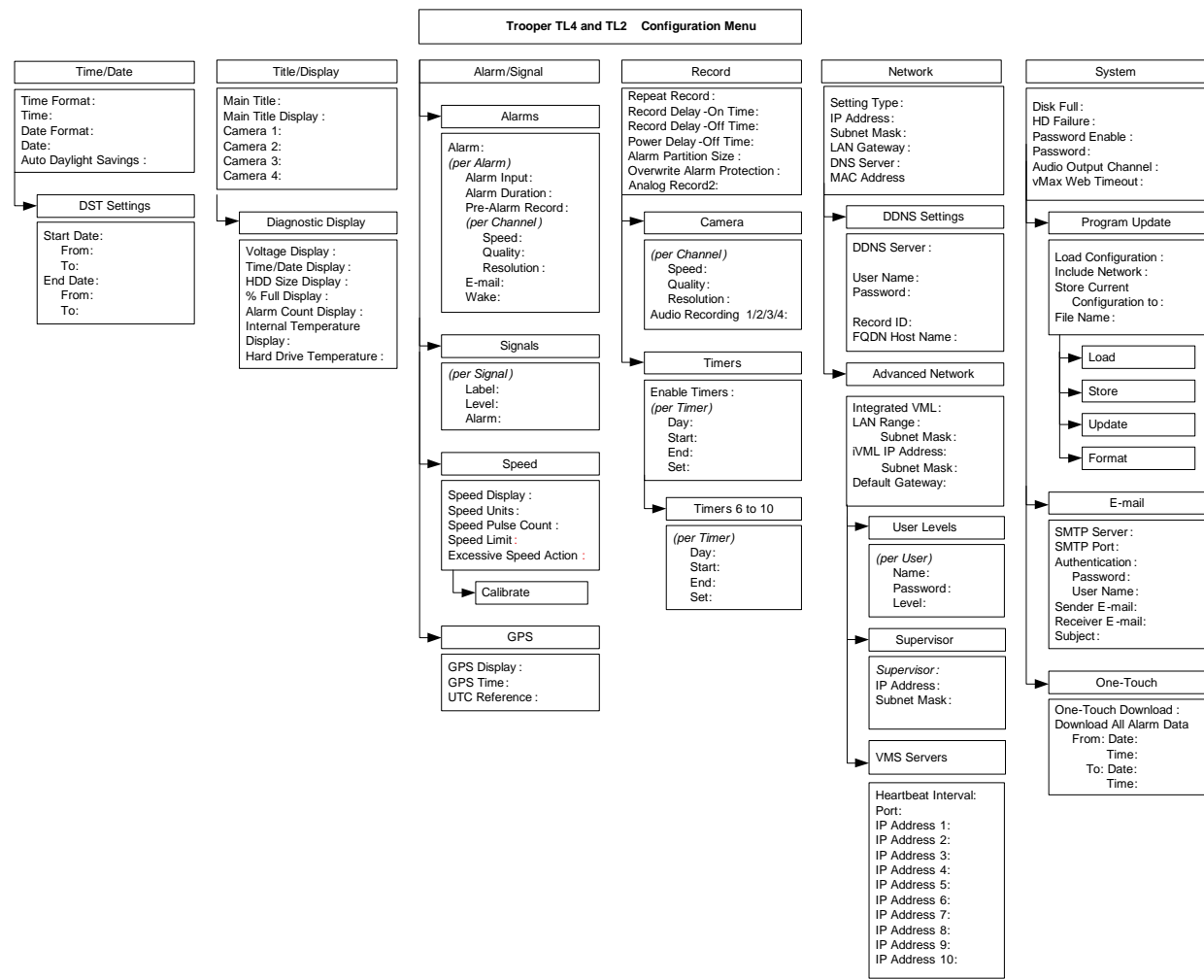
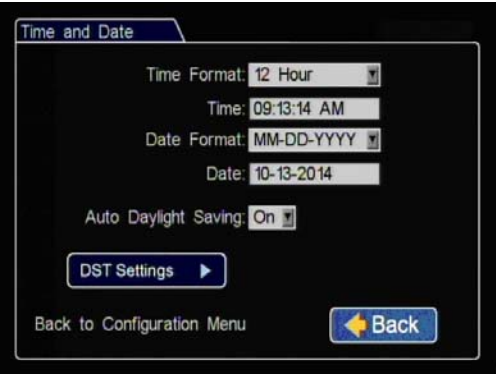


Figure 4-1 Configuration Main Menu for On Screen Display and Web Browser

## 4.2. Time and Date Menu

Use the Time and Date menu to set the time and date settings and Auto Daylight Savings settings.



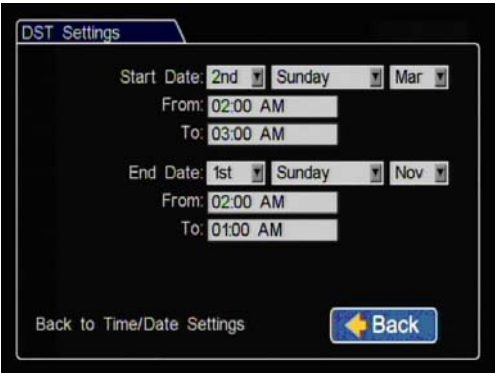
**Figure 4-2** Time and Date Menu

**Table 1** Time and Date Configuration Items

Menu Item	Description	Values [Default]
Time Format	Set the time in 12-hour or 24-hour format.	[12 Hour], 24 Hour
Time	Set the time for the DVR.	12:00 am to 11:59 pm for 12 Hour format, 00:00 to 23:59 for 24 Hour format
Date Format	Set the preferred date format.	[mm-dd-yyyy], dd-mm-yyyy, yyyy-mm-dd
Date	Set the date for the DVR.	Depends on selected Date Format setting.
Auto Daylight Saving	Auto Daylight Saving set to On automatically adjusts the internal clock to daylight saving time. The times and dates can be adjusted as required.	[On], Off

### 4.2.1. DST (Daylight Savings Time) Settings Menu

Configure the start and end date settings for daylight savings.



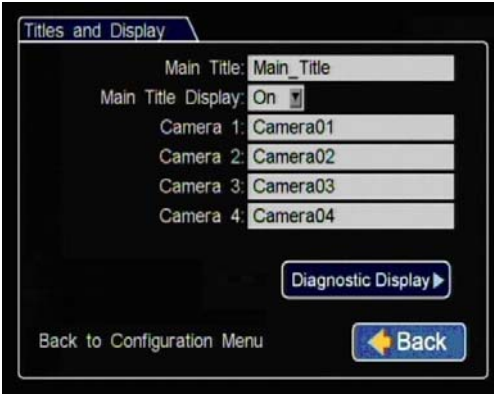
**Figure 4-3** DST Settings Menu

**Table 2** DST Settings Configuration Items

Menu Item	Description	Values [Default]
Start Date	Set the week, day, and month for daylight saving to start.	[2nd Sunday Mar]
From	Set the time for daylight saving to start.	[02:00 AM]
To	Set the time for daylight saving to end.	[03:00 AM]
End Date	Set the week, day, and month for daylight saving to end and return to Standard Time.	[1st Sunday Nov]
From	Set the time for daylight saving to start.	[02:00 AM]
To	Set the time for daylight saving to end.	[01:00 AM]

### 4.3. Titles and Display Menu

Use the Titles and Display menu to set the main title, camera titles, and other camera view overlay options.



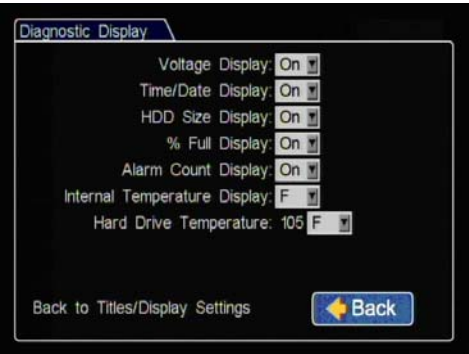
**Figure 4-4** Titles and Display Menu

**Table 3** Titles and Display Configuration Items

Menu Item	Description	Value [Default]
Main Title	Set a title.	[Main_Title] Maximum 32 characters
Main Title Display	Show or hide the main title display.	[On], Off
Camera 1 to Camera 8	Set a title.	[Camera01] to [Camera04] Maximum 8 characters

### 4.3.1. Diagnostic Display Menu

Use the Diagnostic Display menu to set various diagnostic options to display on the camera view overlays.



**Figure 4-5** Diagnostic Display Menu

**Table 4** Diagnostic Display Configuration Items

Menu Item	Description	Value [Default]
Voltage Display	Display the system input voltage.	[On], Off
Time/Date Display	Display the time/date display.	[On], Off
HDD Size Display	Display the hard drive size.	[On], Off
% Full Display	Display the percentage of the hard drive space used.	[On], Off
Alarm Count Display	Display the current alarm count (1 to 9). Alarm count resets to 0 when the DVR is restarted.	[On], Off
Internal Temperature Display	Display the ambient temperature inside the DVR.	C (Celsius), [F (Fahrenheit)], Off
Hard Drive Temperature	Display the DVR hard drive temperature. Read only.	C (Celsius), [F (Fahrenheit)], Off

### 4.4. Alarms and Signals Menu

Use the Alarms and Signals menu to set the options and actions that occur when an external alarm is received by the DVR. Usually, a driver-activated switch or other external device causes the alarm.

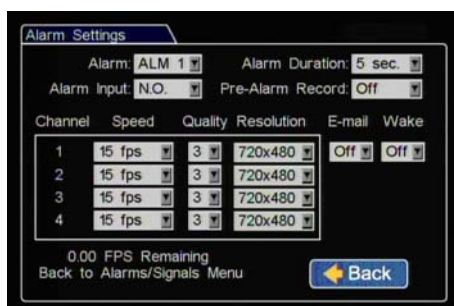


**Figure 4-6** Alarms and Signals Menu



### 4.4.1. Alarm Menu

Select an alarm (1-4) from the menu and configure it as required.



**Figure 4-7** Alarm Settings Menu

**Table 5** Alarm Settings Configuration Items

Menu Item	Description	Value [Default]
Alarm	ALM 1 to ALM 4 are available.	[ALM 1], ALM 2, ALM 3, ALM 4
Alarm Duration	The alarm duration is the length of time after an alarm has been received that the video is recorded at the alarm speed, quality, and resolution.	0, [5], 10, 30 sec, 1, 3, 5, 10, 15, 20, 30, 45 min
Alarm Input	Available only for Alarm 1. Set the alarm input to normally open or normally closed.	[N.O.], N.C.
Pre-Alarm Record	Set the DVR to include video recorded up to 10 seconds before the alarm is triggered.	[Off], 5 sec, 10 sec
Speed	For each channel, set the recording speed, in frames per second, to the desired setting. A DVR usually records in a mode that conserves hard drive space, but increases video speed and quality for a short duration to record an alarm event.	Off, 1, 5, 7.5, 10, [15], 30 FPS
Quality	For each channel, set the alarm recording quality. The DVR offers a range of quality settings from 1 low to 4 high. See Recording Capacity for DVR Hard Drive Storage, in The TL DVR User Guide 700-0098.	1, 2, [3], 4
Resolution	For each channel, set the recording resolution, in pixels, to one of three different levels. The higher the recording resolution, the better the picture looks, but the shorter the recording time on a hard drive.	[720 × 480] 720 × 240 360 × 240
E-mail	This feature requires network connectivity. Sends alarm information to a designated e-mail receiver. Set e-mail address in <a href="#">Email Notifications, on page 3–11</a> .	[Off], On

**Table 5** Alarm Settings Configuration Items

Menu Item	Description	Value [Default]
Wake	<p>The wake on alarm feature is available only for alarm 1. When enabled, this feature causes the system to power up and start recording when Alarm 1 is triggered. The system takes about one minute to power up and start recording, depending on environment conditions.</p> <p>Configure Alarm 1 as follows:</p> <ol style="list-style-type: none"> <li>1. Select Alarm 1.</li> <li>2. Set the Alarm Duration (1, 5, or 10 minutes).</li> <li>3. Set the Alarm Input to N.O or N.C            If programming this line as normally open (N.O.), the red wire can attach directly to the 12V trigger, no further connections are required.</li> </ol> <p>For example, if the alarm input was connected to interior lights of the vehicle, the wake function would occur when the lights are turned on. If the lights remain on, the DVR will still only record for the duration specified in the Alarm menu.</p> <p>If programming this line as normally closed (N.C.) the red wire must remain at ground when off and trigger on with 12V.</p> <p>For example, if the alarm input was connected to interior lights of the vehicle, the wake function would occur when the lights are turned on. If the lights remain on, the DVR will continue to record, repeatedly triggering Alarm 1. Do not use this setting if e-mails are to be sent based on Alarm 1.</p> <p>This input CANNOT be left floating, and must be pulled back to a 0 VDC low condition via external resistor or relay.</p> <ol style="list-style-type: none"> <li>4. Set the pre-alarm record duration (Off, 5 sec, 10 sec.).</li> <li>5. Set the Email option (On, Off).</li> <li>6. Set the Wake option to On</li> </ol> <p><b>IMPORTANT:</b> If you are using the alarm button and cable, and wish to use the Wake feature, the alarm button cable must be rewired as follows:</p> <ul style="list-style-type: none"> <li>• On the alarm button cable, cut the green wire just before it enters the socket.</li> <li>• Extend and connect the green wire from the alarm button cable to an input wire on the signal input harness.</li> </ul>	[Off], On

4.4.2. Signals Menu

Use the Signals menu to configure signals and the actions they generate. The TL supports 10 independent signals. The first five are designated as follows: LT (left turn signal), STP (stop), BRK (brake), WRN (warning lights), and RT (right turn signal). The last five can be set for other functions. All of these signals can be used to indicate the status of any indicator, maximum 3 characters.



Figure 4-8 Signals Menu

Table 6 Signals Configuration Items

Menu Item	Description	Value [Default]
Signal 1	On screen display text for left turn signal.	LT, maximum 3 characters
Signal 2	On screen display text for stop signal.	STP, maximum 3 characters
Signal 3	On screen display text for brake signal.	BRK, maximum 3 characters
Signal 4	On screen display text for warning lights signal.	WRN, maximum 3 characters
Signal 5	On screen display text for right turn signal.	RT, maximum 3 characters
Level	Indicates the activation level for the signal. <ul style="list-style-type: none"><li>If Active High is selected, 12 VDC applied to a signal causes the text to be displayed.</li><li>If Active Low is selected, 0 VDC applied to a signal causes the text to be displayed.</li></ul>	[Active H], Active L
Alarm	When the alarm setting is enabled, signals can trigger an alarm. See <a href="#">Alarm Menu, on page 4-7</a> .	[Off], Alm 1, Alm 2, Alm 3, Alm 4

### 4.4.3. Speed Menu

Use the Speed Settings menu to set the options for recording vehicle speed data.



**Figure 4-9** Speed Settings Menu

**Table 7** Speed Settings Configuration Items

Menu Item	Description	Value [Default]
Speed Display	If speed is being recorded, select the desired input type to obtain the speed: <ul style="list-style-type: none"> <li>a GPS receiver</li> <li>a pulse counting input</li> </ul>	GPS, [Pulse]
Speed Units	If the speed is being recorded from the GPS receiver or a Pulse input, the desired speed display units must be selected. Selecting MPH converts the GPS signal to display speed in miles per hour.	[MPH] - Miles per hour KPH - Kilometers per hour KTS - Knots
Speed Pulse Count	The DVR records vehicle speed by counting the number of pulses received either from a vehicle speed sensor or a vehicle Transmission Control Module (TCM). Calibrate the DVR to the vehicle's speed signal by driving for one mile or kilometer in Calibration Mode. The DVR counts the pulses from the speed sensor and then converts a pulse rate into speed. The actual distance driven during calibration determines the unit of the speed.  For example, to have speed recorded in MPH, drive for one mile in Calibration Mode. To have speed recorded in KPH, drive for one kilometer. The speed pulse count increments as the vehicle travels.	[3600], maximum 6 characters
Speed Limit	The selected value will trigger notifications if exceeded by the vehicle speed.	0
Excessive Speed Action	The vehicle will trigger the selected action when the vehicle speed exceeds the programmed limit.	[Off], Log, E-mail, S1 to S10, A1 to A4
Calibrate	When calibrating speed, it is best to use known road markers to determine a mile or a kilometer, as reading the odometer may introduce errors. <ul style="list-style-type: none"> <li>Press Calibrate to begin calibration.</li> <li>Press Stop after driving exactly one mile or kilometer.</li> </ul>	

4.4.4. GPS Settings Menu

Use the GPS Settings menu to set the options for recording vehicle time and location data.

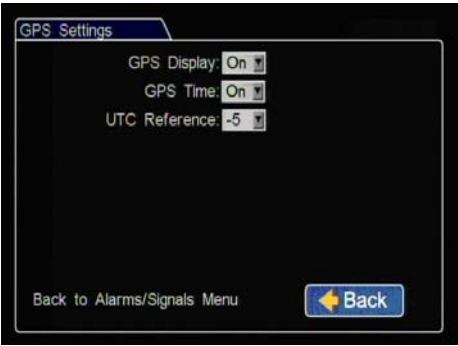


Figure 4-10 GPS Settings Menu

Table 8 GPS Settings Configuration Items

Menu Item	Description	Value [Default]
GPS Display	Show or hide the GPS display on the main screen overlay. With a GPS module connected to the DVR, the latitude and longitude of the vehicle location are displayed.	[On], Off
GPS Time	Show or hide the GPS time on the main screen overlay.	[Off], On
UTC Reference	UTC refers to the atomic clock standard in Greenwich, England. The DVR location is a certain time difference from UTC time. Determine your time difference from UTC time and select this time. <ul style="list-style-type: none"><li>For example, Eastern Standard Time is –5 hours from UTC time.</li><li>Pacific Standard Time is –8 hours from UTC time.</li></ul>	–12 [–5] to –1, 0, +1 to +12

## 4.5. Recording Settings Menu

Use the Recording Settings menu to set the resolution, recording speed in frames per second (FPS), image quality, Record Delay-On and Record Delay-Off times, and other recording options.



**Figure 4-11** Recording Settings Menu

**Table 9** Record Configuration Items

Menu Item	Description	Value [Default]
Repeat Record	Enables recording over older video data once the hard drive is full. <ul style="list-style-type: none"> <li>When On, the DVR continues recording, overwriting the first recorded data. the HD used overlay shows “N/A Repeating”. The DVR continues recording overwriting the first recorded data.</li> <li>When Off, at 100%, the on screen display HD Used message shows “100%. The DVR stops recording.</li> </ul>	[On], Off
Record Delay-On Time	Enables a time delay after the ignition signal turns on until the DVR is turned on.	0, [30 sec], 1, 5, 10, 20, 30, 45, 60 min
Record Delay-Off Time	Enables a time delay to continue recording after the ignition signal to the DVR is turned off. The power output connector on the DVR back panel remains active during this time.	0, [15], 30 sec, 1, 5, 10, 20, 30, 45, 60 min
Power Delay-Off Time	Enables a time delay after the record delay-off time expires to keep the DVR on but not recording. The control connector on the DVR back panel remains active to allow peripherals such as Smart-Reach to be powered up during the power delay time.	0, [15], 30 sec, 1, 5, 10, 20, 30, 45, 60 min, 2, 4 hours
Alarm Partition Size	Enables a portion of the hard drive to be reserved for alarm data that needs to be protected and not erased by the Repeat Record function.	[Off], 10, 20, 30, 40%
Overwrite Alarm Partition	When an Alarm Partition size is selected, enable or disable recording over older protected alarms once the alarm partition is full.	[Off], On

**Table 9** Record Configuration Items


Menu Item	Description	Value [Default]
Analog Record2	<p>The DVR can record video in two streams, one at high resolution for full detailed event information, and the other (Analog Record2) at lower resolution for fast downloading or real-time viewing over a low bandwidth network, such as a cellular link.</p> <p>In the event of an emergency, if the system is configured with Smart-Reach Cellular hardware and cellular plan, AnalogRecord2 allows quick access to video on-line to assess the situation.</p> <p>Use the Analog Record 2 settings menus to set lower frame per second recording rates for the analog cameras selected in the Camera menu.</p>	Off, 1, 2, 3, 4, [5] fps

### 4.5.1. Camera Settings Menus

Use the Camera Settings menus to set the FPS, picture quality, recording resolution, and audio recording for up to four cameras.

**Figure 4-12** Camera Settings Menu**Table 10** Camera Settings Configuration Items

Menu Item	Description	Value [Default]
Speed	Set the recording frame rate. The TL4/2 has a maximum total combined frame rate of 80 frames per second which can be distributed between up to 4 cameras.	Off, 1, 5, 7.5, 10, [15], 30 fps
Quality	Set the picture quality option. Setting 1 is the lowest quality, setting 4 is the highest quality. The higher the quality, the more space is used on the hard drive. The DVR uses H.264 video compression to extend the recording time on the hard drive. See Estimated Recording Time tables in the TL DVR User Guide, 700-0098.	1, 2, [3], 4
Resolution	Set the recording resolution in pixels. The higher the recording resolution, the shorter the recording time on the hard drive.	[720 × 480], 720 × 240, 360 × 240
Audio Recording	Enables audio recording for the input channel. Turn off audio for camera channels that are not used.	Off, [On]



**CAUTION: Set Unused Cameras Off**

When a DVR is installed with less than the full complement of cameras connected, disable unused camera input settings to prevent the DVR from generating Video Loss (VLoss) events for those camera inputs. In the DVR Configuration menus, disable unused camera inputs as follows:

- Record Settings menu: Camera Speed OFF, Camera Audio OFF (to save disk space)
- Alarms/Signals menu: Channel Speed OFF.

4.5.2. Timer Settings Menus

Use the Timer Settings menu to set the timerschedules to turn the recording on and off  
Use the Timer Settings menu to set the timer schedules to turn the recording on and off.

The timer function can only operate when the ignition is on. It cannot be set to record when the vehicle is off.

(when the vehicle ignition is on). The DVR supports ten independent timers that can be used to control when and how the DVR records.



Figure 4-13 Timer Settings Menus

Table 11 Timer Settings (1 to 10)

Menu Item	Description	Value [Default]
Enable Timers	Enables preset times for recording.	[Off], On
Day	Set the timer to record on a specific day, daily, every weekday (WDY), or only on the weekend (WND).	DLY, [WLY], WND, SUN, MON, TUE, WED, THU, FRI, SAT
Start	Set in 12-hour format. Set in 24-hour format.	<ul style="list-style-type: none"><li>[12:00 AM] to 11:59 PM for 12 hr format,</li><li>00:00 to 23:59 for 24 hr format</li></ul>
End	Set in 12-hour format. Set in 24-hour format.	<ul style="list-style-type: none"><li>[12:00 AM] to 11:59 PM for 12 hr format,</li><li>00:00 to 23:59 for 24 hr format</li></ul>
Set	Enables and disables the timer.	[Off], On



## 4.6. Network Settings Menu

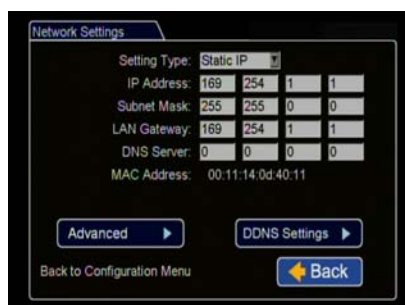
The Trooper TL DVR has an Ethernet port for connecting to a computer or the Smart-Reach® mobile wireless bridge equipment. See [Figure 1.3., Installation Diagrams on page 1–2.](#)



### CAUTION: Network Configuration

To connect using the network connection, each host (computer) connected to the network must have a unique IP address. A qualified IT administrator is required to provide information about the network settings and to configure the Network settings, Advanced Settings, DDNS settings, and E-mail settings. Contact Seon Engineering Services or Technical Support to perform any configuration, assign an IP address, reset the Smart-Reach Mobile wireless bridge or operating information.

Use the Network settings menu to set the network communication parameters necessary to use the Smart-Reach Mobile wireless bridge equipment and Ethernet on the Trooper TL.




**Figure 4-14** Network Settings Menu

**Table 12** Network Settings Configuration Items

Menu Item	Description	Value [Default]
Setting Type	For network settings, consult your IT administrator to configure the setting type and IP address.  If DHCP is used, the subnet mask, default gateway and DNS server are configured automatically.	Off, [Static IP], (a permanent address on the network assigned by the network administrator), DHCP (Dynamic Host Configuration Protocol) automates the assignment of IP addresses in a network
IP Address	Enter the DVR IP Address as determined by a qualified network expert.	[169.254.1.1]
Subnet Mask	Enter the network subnet mask as determined by a qualified network expert.	[255.255.0.0]
LAN Gateway	Gateway address uniquely identifies a host or computer on the LAN which connects the subnet to other networks. Enter the LAN gateway as determined by a qualified network expert or network administrator.	[169.254.1.1]
DNS Server	Uses an IP address composed of four octets separated by decimals. See <a href="#">DDNS (Dynamic Domain Name Server) Settings Menu, on page 4–20.</a>	[0.0.0.0]
MAC Address (fixed)	MAC (Media Access Control) is the DVR's unique hardware number.	

4.6.1. Advanced Network Menu

Use to enable the DVR for live video streaming and vehicle tracking in vMax Live Plus.



**CAUTION: Advanced Settings Configuration**

For advanced settings, a qualified IT administrator is required to perform any configuration including assigning IP addresses. A cellular modem or gateway must also be installed and configured.

Contact Seon Engineering Services or Technical Support.

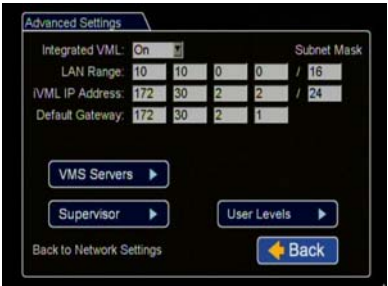


Figure 4-15 Advanced Network Settings Menu

Set up to enable the DVR to simultaneously connect with cellular and Wi-Fi networks using a Seon Smart-Reach Cellular modem. See the Smart-Reach Cellular Install and Setup Guide, 700-1018, for details.

Table 13 Advanced Network Configuration Items

Menu Item	Description	Value [Default]
Integrated VML	Set to On to enable the integrated VML feature. Off disables the integrated VML feature.	[Off] On
LAN Range	Set the customer network's LAN range as determined by a qualified network expert. Use if the customer network is outside of the DVR network.  <b>Note:</b> There must be a value in this field. If not used, enter a dummy IP address such as 10.10.0.0.	[0.0.0.0]
LAN Subnet Mask	Set the LAN subnet mask used for the LAN Gateway Destination range as determined by a qualified network expert. Use a value between 0 and 32.	[16]
iVML IP Address	Enter the iVML IP Address as determined by a qualified network expert.	[172.30.2.2]
iVML Subnet Mask	Set the subnet mask for the iVML IP Address as determined by a qualified network expert. Use a value between 0 and 32.	[24]
Default Gateway	Enter the Default Gateway IP address as determined by a qualified network expert.	[172.30.2.1]

4.6.2. VMS Servers Menu

Set up to enable communication with Seon vMax Commander software.

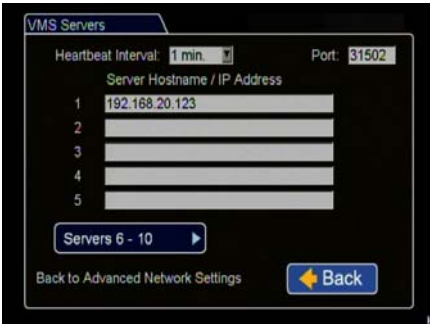


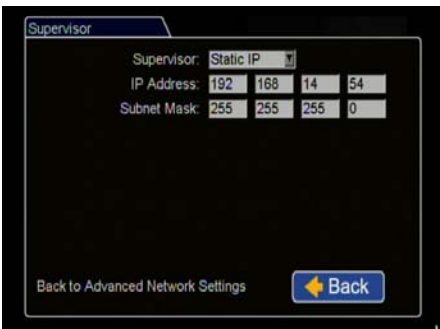
Figure 4-16 VMS Servers Menu

Table 14 VMS Servers Configuration Items

Menu Item	Description	Value [Default]
Heartbeat Interval	Select an interval as determined by a qualified network expert, to transmit DVR status messages to all available VMS Servers every 1 to 5 minutes.	[Off], 1, 2, 3, 4, 5 minutes
Port	Enter a Port for VMS Heartbeat communication as determined by a qualified network expert. Set a value between 1 and 65535	[31502]
Server 1 to 10		
Hostname/IP Address	Up to 10 server hostnames or IP addresses that can receive VMS heartbeat messages from the DVR as determined by a qualified network expert. To save data usage, VMS hostnames should not be used when the iVML is enabled. Use the actual IP addresses.	maximum 64 characters

### 4.6.3. Supervisor Menu

Set up to enable supervisor users in wireless environments.



**Figure 4-17** Supervisor Menu

Set up to enable supervisor users in wireless environments.

**Table 15** VMS Servers Configuration Items

Menu Item	Description	Value [Default]
Supervisor	Select Static IP to add a supervisor vehicle DVR's Static IP Address to the Ethernet port.	[Off], Static IP
IP Address	Enter the IP Address as determined by a qualified network expert.	[0.0.0.0]
Subnet Mask	Enter the subnet mask as determined by a qualified network expert.	[0.0.0.0]

4.6.4. User Levels Menu

Set up to enable multiple users to access the DVR from vMax Web View with various permission levels.

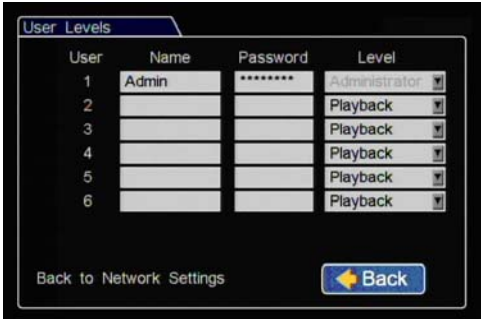


Figure 4-18 User Levels Menu

**CAUTION: DVR Password Security**

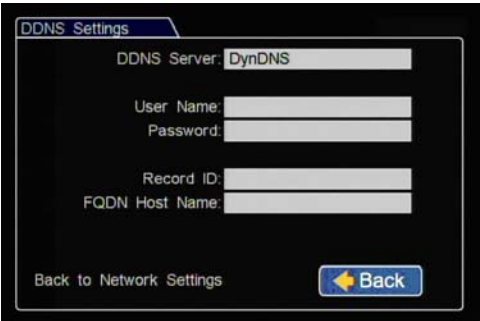
The default password is 11111111. For security purposes, Seon recommends that the user default login and system settings passwords should be changed. Seon is not responsible if the password is lost or forgotten.

Table 16 User Levels Configuration Items

Menu Item	Description	Value [Default]
User 1 (User 2 to 6)		
Name	Six user names can be configured to have remote access to the DVR. These are case sensitive.	[Admin] for User 1 [Blank] for User 2 to 6, Maximum 8 characters
Password	Set the password for each individual user.	[11111111] Maximum 8 characters
Level	Each user is assigned a specific access level. Three levels are supported: <ul style="list-style-type: none"> <li>• playback - allows the user to play and archive recorded video and view live video.</li> <li>• configure - allows the user playback rights plus DVR configuration.</li> <li>• administrator - allows user full rights to the DVR setting.</li> </ul>	[Administrator] for User 1, [Playback] for User 2 to 6

### 4.6.5. DDNS (Dynamic Domain Name Server) Settings Menu

Use this menu to assign a specific host name to a DVR which is using a DHCP IP address.




**Figure 4-19** DDNS Settings Menu

**Table 17** DDNS Settings Configuration Items

Menu Item	Description	Value [Default]
DDNS (Dynamic Domain Name Server)	DynDNS currently supported.	Maximum 64 characters
User Name	Set the user name.	Maximum 32 characters
Password	Set the password.	Maximum 32 characters
Record ID	This is typically a numeric string.	Maximum 16 characters
FQDN Host Name	The fully qualified domain name for the host. I.e. mydvr.myname.dyndns.com	Maximum 64 characters

# 4.7. System Settings Menu

The System Settings menu allows control of system level settings and functions that should only be accessed by authorized individuals.



**CAUTION: DVR Password Security**

The default password is 11111111. For security purposes, Seon recommends that the user default login and system settings passwords should be changed. Seon is not responsible if the password is lost or forgotten.



Figure 4-20 System Settings Menu

Table 18 System Settings Configuration Items

Menu Item	Description	Value [Default]
Disk Full	Set to send e-mail notification when the disk is full.	[Off], E-mail
HD Failure	Set to send e-mail notification if the hard drive fails.	[Off], E-mail
Password Enable	If set to On, the STOP/TEMP PWR button on the DVR and the main OSD menu is locked out and requires a password.	[Off], On
Password	The password is maximum eight digits.	[11111111], 00000000 to 99999999
Audio Output Channel	Select the audio channel that is output on the Audio RCA connector on the front of the DVR.	[1], 2, 3, 4, 5, 6, 7, 8
vMax Web Timeout	Set the amount of time after the last user action when vMax Web will log the user out and close.	Off, 5 min, [10 min], 20 min, 30 min, 45 min, 1 hr

### 4.7.1. Program Update Menu

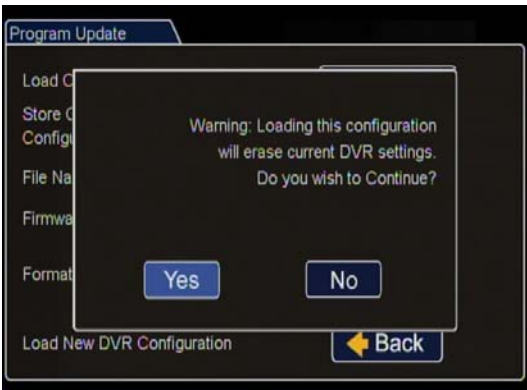
The Program Update menu enables users to update the internal firmware and to store and load the DVR configuration.



**Figure 4-21** Program Update Menu

**Table 19** Program Update Configuration Items

Menu Item	Description	Value [Default]
Load Configuration	Load the configuration settings from a USB device. MEM1 is a customized configuration setting file. The drop down list will only show the most recent 10 configuration files on the USB device.	[Default], MEM1
Include Network	Select to include network information when the configuration is loaded.	[NO], YES
Store Current Configuration	Store the DVR configuration settings to a USB device.	[USB Device], MEM1
File Name	Set the file name of the configuration file you are saving.	[SEO1] Maximum 4 characters
Load	Load the new DVR configuration settings.	
Store	Store the DVR's configuration to a USB device.	
Update	Upgrade the firmware. See <a href="#">DVR Firmware Updates, on page 3–10</a> .	
Format	Format the hard drive.	



**Figure 4-22** Load Configuration: Warning Message





Figure 4-23 Store DVR Configuration to USB Device Message



Figure 4-24 Update DVR Firmware Message

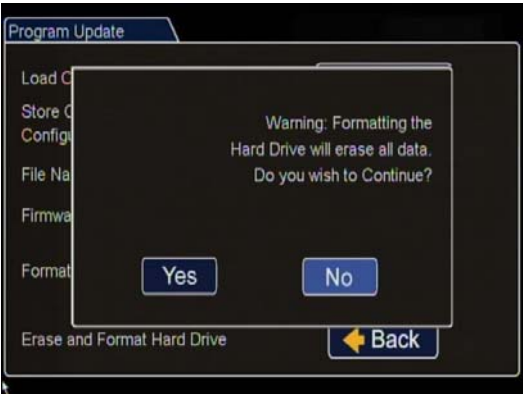


Figure 4-25 Formatting the Hard Drive Message

### 4.7.2. E-mail Settings Menu

The E-mail Settings feature requires network connectivity.  
If using the iVML live video streaming feature, do not use DVR email.  
See [Network Settings Menu](#), on page 4–15.



**Figure 4-26** Email Settings Menu

**Table 20** Email Settings Configuration Items

Menu Item	Description	Value [Default]
SMTP Server	Set the server name.	Maximum 32 characters
SMTP Port	Set the SMTP port.	[25], 1 through 9999
Authentication	Set the authentication.	Login, [None]
User Name	Set the user name, when Login is selected.	Maximum 32 characters
Password	Set the password, when Login is selected.	Maximum 32 characters
Sender	Set the sender e-mail.	Maximum 64 characters
Receiver	Set the receiver e-mail.	Maximum 32 characters
Subject	Set the subject.	Maximum 32 characters

4.7.3. One-Touch Settings Menu

Use the One-Touch button without a video monitor.



Figure 5 One-Touch Settings Menu

Table 21 One-Touch Setting Configuration Items

Menu Item	Description	Value [Default]
One-Touch Download	Set the video type to be downloaded.	[Alarms], Today, Time, Clip Depends on the hard drive data.
From Date	Set the month, day, and year.	
From Time	Set the time 12 AM to 11 PM for 12 hour format and 00 to 23 for 24 hour format.	
To Date	Set the month, day, and year.	
To Time	Set the time 12 AM to 11 PM for 12 hour format and 00 to 23 for 24 hour format.	



# Legal Notice

## Seon Design® Inc.

Seon Design Inc. is a specialist in the design and manufacture of video surveillance systems for mobile applications. Seon has been the preferred solutions provider for the pupil transportation industry since 1999. Today, we are proud that our success in this area has made us the leading manufacturer of mobile video surveillance systems in North America.

## Contact Information


Seon Design Inc., Unit 111, 3B Burbidge Street, Coquitlam, BC Canada V3K 7B2

<b>Telephone</b>	604.941.0880	<b>Toll Free Telephone</b>	1.877.630.7366
<b>Fax</b>	604.941.0870	<b>Toll Free Fax</b>	1.866.664.3677
<b>Email</b>	sales@seon.com	<b>Web site</b>	www.seon.com

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## Document Part Number

This User Manual is valid for Seon Design Inc. Document Part Number 700-0099.

## Printed in Canada



# Seon Design Inc.® Product Warranty

Seon Design Inc. (Seon) warrants the cameras and components listed below against defects in workmanship and materials provided that such defects appear or are discovered within the respective periods specified below and provided further that the purchaser of such products notifies Seon of such defects within thirty (30) days of the appearance or discovery of such defects:

- Three (3) years from date of purchase, parts and repair labor on all Cameras
- Three (3) years from date of purchase, parts and repair labor on the Explorer® Premier, DX, TX, EX, MX, and Trooper® TL series mobile DVR Systems
- Three (3) years from date of purchase, parts and repair labor on all storage media (including hard drives)
- One (1) year from date of purchase, parts and repair labor on the Smart Reach® Wireless systems and other Wireless products
- One (1) year from date of purchase, parts and repair labor on the VML Controller, Student Tracking RFID reader, and other vMax Live Plus hardware products
- One (1) year from date of purchase, parts and repair labor on all other products and accessories

If Seon repairs any camera or component which is out of warranty Seon warrants such repaired cameras or components against defects in workmanship and materials provided that such defects appear or are discovered within 90 days from date of shipment of such repaired camera or component to customer by Seon and provided further that the purchaser of such products notifies Seon of such defects within thirty (30) days of the appearance or discovery of such defects.

Subject to the terms and conditions listed below, during the relevant warranty period, Seon will repair, replace, or refund the purchase price for the defective product, whichever Seon considers to be appropriate in the circumstances, in Seon's sole and arbitrary opinion, free of charge, any defective products returned prepaid. In the event purchaser has a problem with any Seon product, please call and request a RETURN AUTHORIZATION (RA) NUMBER from the Service Department. Please call 877-630-7366 or (604) 941-0880 and ask for the Service Department. Be sure to have the model number, serial number and the nature of the problem available for the customer service representative. Prior authorization MUST be obtained for all returns, exchanges, or credits. ITEMS SHIPPED TO SEON WITHOUT A CLEARLY IDENTIFIED RA NUMBER MAY BE REFUSED.

Products returned will be tested to verify for possible defects. Upon verification of a defect, the product will be repaired or exchanged, or the purchase price will be refunded or credited to the customer's account, at the sole option of Seon. In the event of replacement, the returned product will be credited to the customer's account and a new invoice issued for the replacement item. Seon reserves the right to refund the purchase price or to issue a credit only in lieu of replacement. Seon may use new or refurbished replacement parts for repairing its products, at its sole and arbitrary discretion. Seon may replace an entire unit with an equivalent model, at its sole and arbitrary discretion. If a unit is exchanged, the returned product shall become the property of Seon and the exchange product becomes the property of the purchaser, and the remainder of the warranty that applied to the original unit purchased shall apply to the exchanged product. Exchange units may be new units, or units that have been repaired to full factory specifications, at Seon's discretion. If the product is found to be in good working order or its inability to function properly is not covered by this warranty, the product will be returned in the same condition as received unless repair is possible and requested by the customer. Repairs of such nature will incur a charge for parts and labor and will proceed only by agreement with the customer to accept the charge.

## Advance Replacements

If there is a defect in workmanship or materials covered by this warranty in a camera, recorder or component and customer notifies Seon of such within sixty (60) days of:

- (a) the date of installation of such product if the installation of such product was done by Seon; or
- (b) if Seon did not install the product, of the date of shipment of the product to the customer by Seon,

and the customer requests advance replacement of such product by Seon, Seon will replace such product without charge in advance of return of such product by customer to Seon provided that if customer has not returned the defective product to Seon within sixty (60) days of the date of shipment by Seon of the advance replacement then Seon will invoice the customer for the purchase price of the advance replacement product including shipping costs and any taxes, duties or other charges related to the advance replacement and the customer shall pay to Seon the amount invoiced within 30 days of receipt of invoice, or if the customer has a written agreement with Seon regarding credit terms, then the customer shall pay the amount invoiced in accordance with the agreed upon credit terms.

This warranty shall not apply:

- (a) to equipment not supplied by Seon;
- (b) to computer equipment supplied by Seon (such as monitors, printers, servers and laptops) not manufactured by Seon. The customer must contact original manufacturer of such equipment for warranty terms and service;
- (c) to equipment, including, any components, which shall have been operated in excess of rated capacity, subject to negligence, accident, or damage by circumstances beyond Seon's control, or to improper installation, operation, maintenance, servicing, alterations or storage, modification without Seon's written authorization, misuse, vandalism, fire, floods or acts of nature so as, in Seon's exclusive and arbitrary judgment, to affect the same adversely;
- (d) to equipment that is installed utilizing installation products not supplied by Seon;
- (e) if the warranty seal on the DVR has been broken or tampered with;
- (f) if the serial number for the product has been altered in any way; or

## Seon Design Inc.® Product Warranty

- (g) if the product has been operated outside of the specified Operating Environment specified in the Seon User's Manual for such product, or
- (h) to cover any costs incurred by the customer for the removal of defective cameras or components or of non-defective cameras or components, or for the installation of repaired cameras or components or for the reinstallation of non-defective cameras or components, all of which are for the account of the customer.

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### Provisions Applicable to American Customers

For those customers whose mailing address is in the United States, Seon's offer and any agreement of sale resulting therefrom shall be governed by and construed in accordance with the internal and domestic laws of the State of WASHINGTON without giving effect to the conflict of laws rules thereof. The Superior Court of Washington for Whatcom County and U.S. District Court for the Western District of Washington (the "U.S. Closed Courts") shall have exclusive jurisdiction to entertain and determine all disputes and claims, whether for specific performance, injunction, declaration or otherwise arising out of or in any way connected with the construction, breach, or alleged, threatened or anticipated breach of the contract resulting from this offer and shall have jurisdiction to hear and determine all questions as to the validity, existence or enforceability thereof. Customer specifically consents to such Court's exercise of jurisdiction over it. The purchaser attorns to the exclusive jurisdictions of the U.S. Closed Courts, waives any obligation to venue in any action or proceeding regarding Seon Products and waives any objection that the U.S. Closed Courts are an inconvenient forum or do not have jurisdiction over the purchaser of Seon. The United Nations Convention On Contracts For The International Sale Of Goods shall not apply.

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For those customers whose mailing address is in Canada, Seon's offer and any agreement of sale resulting therefrom shall be governed by and construed in accordance with the internal and domestic laws of the Province of BRITISH COLUMBIA and the laws of Canada applicable therein without giving effect to the conflict of laws rules thereof. The courts of British Columbia (the "Canadian Closed Courts") shall have exclusive jurisdiction to entertain and determine all disputes and claims, whether for specific performance, injunction, declaration or otherwise arising out of or in any way connected with the construction, breach, or alleged, threatened or anticipated breach of the contract resulting from this offer and shall have jurisdiction to hear and determine all questions as to the validity, existence or enforceability thereof. The purchaser attorns to the exclusive jurisdictions of the Canadian Closed Courts, waives any obligation to venue in any action or proceeding regarding Seon Products and waives any objection that the Canadian Closed Courts are an inconvenient forum or do not have jurisdiction over the purchaser of Seon. The United Nations Convention On Contracts For The International Sale Of Goods shall not apply.



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The following extended warranty ("Extended Warranty") provisions apply to products ("Extended Warranty Products") in respect of which the customer has purchased the Extended Warranty as a separate product from Seon. If any provisions of the Extended Warranty conflict or are inconsistent with the provisions of the basic warranty set forth above, the provisions of the Extended Warranty shall govern.

Seon warrants the Extended Warranty Products against defects in workmanship and materials provided that such defects appear or are discovered within the extended warranty period set forth in the applicable warranty purchased by the customer and provided further that the purchaser of such products notifies Seon of such defects within 30 days of the appearance or discovery of such defects.

#### **Under the Extended Warranty:**

- (a) Seon will provide repairs to the Extended Warranty Product at no extra charge during the Extended Warranty period;
- (b) normal wear and tear IS covered, including replacement of hard drives if necessary;
- (c) the parts and repair labor required to complete all warranted repairs are included;
- (d) Seon will arrange and pay the cost of ground freight between customer's location and the Seon U.S.A. service facility (or such other location) as is designated by Seon in the relevant Return Material Authorization issued by Seon in respect of such Extended Warranty Product; and
- (e) Seon will pay freight, brokerage and duty costs to bring the goods to Canada, if required, in the sole and arbitrary opinion of Seon.

In addition to the telephone numbers provided above for reporting a warranty matter, purchasers of Extended Warranty products may report warranty matters by e-mail to Seon at: [service@seon.com](mailto:service@seon.com).

The purchaser reporting an Extended Warranty issue may request Seon to arrange for pick-up of the Extended Warranty Products and shall provide information as to the number of parcels and shall request a RETURN AUTHORIZATION (RA) NUMBER.

Seon will only be responsible for the cost of ground freight. Any additional costs for express modes of freight will be paid by the purchaser of the Extended Warranty Product. Advance replacements will not be provided.

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**Seon Design Inc.**  
**Unit 111, 3B Burbridge Street**  
**Coquitlam, BC**  
**Canada V3K 7B2**

Telephone	604.941.0880
Toll Free Telephone	1.877.630.7366
Fax	604.941.0870
Toll Free Fax	1.866.664.3677
Email	<a href="mailto:sales@seon.com">sales@seon.com</a>
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